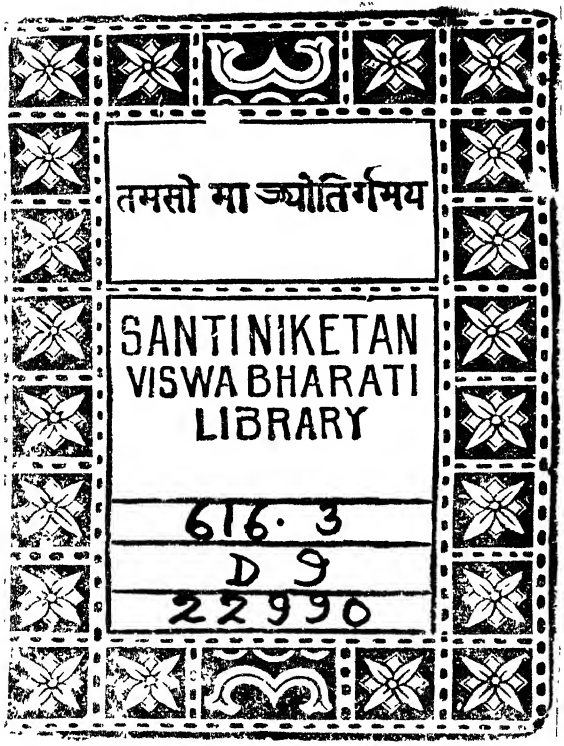
ॐ
तमसो मा ज्योतिर्गमय
SANTINIKETAN
VISWA BHARATI
LIBRARY
616.3
D 9
22990

INDIGESTION.

INDIGESTION

Clearly Explained, Treated and Dieted with Special Remarks on Corpulency and Gout.

BY

THOMAS DUTTON, M.D., UNIV. DURH.

Bachelor-in-Medicine University of Durham.
Member of the Royal College of Physicians of Edinburgh, etc.

Author of "Food and Drink Eaten, Why Discussed", "Sea-Sickness—Voyages for Health—Health-Resorts—Hygiene Hygiene", "Rearing and Feeding of Children", "Obesity: Its Cause and Treatment"; "On Germs"; "Gastric Ulcer: Cause, Pathology, Treatment and Cure", etc.

FIFTH EDITION, ENLARGED AND REVISED

LONDON:

HENRY KIMPTON,
MEDICAL PUBLISHER,
32, HIGH HOLBORN, W.C.

HIRSCHFELD BROS
BERARD'S BUILDINGS
FETTER LANE, E.C.

Printed in Holland at the Motley Press.

CONTENTS

PREFACE TO THE FIRST EDITION.

I HAVE great confidence in placing this work before the profession and public, as I feel certain that a book written concerning indigestion, on lines as within, is really required. There are some excellent manuals and text-books on the subject already published, written by men to whose learning I can never hope to attain, but they are too scientific for the ordinary reader and are alone intelligible to the medical student or chemist. People of the present day, although neither students of medicine nor chemistry, wish to learn something of that body in which they live, and are not desirous in any way to injure their health through ignorance of the same; at the same time they do not wish to be always in the consulting room of a physician, and these intelligent ones will, I trust, find sufficient amount of literary food in the following pages easy of digestion.

In the introductory remarks I have tried to introduce the subject in a general way; in Chapter I., I have fully gone into the various points connected with indigestion and dietetic treatment; in Chapter II., I have given, I trust, a clear outline

of the physiology of indigestion, which I hope will be read with care, as this is the fundamental chapter of the whole work. Chapters III., IV., and V., describe the causes, symptoms, and the various diseases which are the primary causes of indigestion. I give the general treatment in Chapter VI., explaining, I trust plainly, why I consider it is impossible to treat every case in a book of any description, and the great value dietetics are in the cure of this disease and also obesity and gout, which so frequently are produced by, and produce indigestion. Chapter VII., explains the way we obtained a knowledge of the time digestion takes when different foods are taken and go into the stomach, also the various foods and their values. Chapter VIII. is devoted to the rearing of infants; a careful perusal of which, I trust, will be of benefit to young mothers and prevent this work being needful to their offspring when they attain manhood. In the last chapter will be found some historic facts relating to indigestion. I have tried to be as clear in this work as the inexhaustible science of medicine will permit, and sincerely trust it may bear some good fruit, in bringing relief to many who, in this world, have little joy to hope for except that which is always associated with robust health.

THOMAS DUTTON.

November, 1891.

PREFACE TO THE SECOND EDITION.

THE confidence with which I placed the First Edition before the profession and public has been, I am pleased to say, fully endorsed by the favourable and excellent reviews the work has received from the Medical and Lay Press. I have also received congratulatory letters from all quarters of the globe, in which many of the writers state they not only found the book useful as a guide to Indigestion, Gout, Constipation and Corpulency, but as a general guide to health.

The *Bookseller*, (January, 1892) says:

"Without diving into technicalities that none but a doctor understands, he yet succeeds in writing fully and lucidly of the cause and cure of the disease which troubles so many."

These few words express exactly the object I had in view when writing it, although I was doubtful whether I should accomplish it.

The rapid exhaustion of the First Edition has compelled me to send this Edition to press without any alterations in the text.

THOMAS DUTTON.

April 1st, 1893.

PREFACE TO THE THIRD EDITION.

By reason of the excellent reception the First and Second Editions of this work have met with, I have been induced to make numerous additions to the work and correct some slight mistakes kindly pointed out by the reviewers. I trust the additions, while enhancing the value of the work, will at the same time fulfil the author's aim, viz., to make it a useful book of reference, not only to those who are under professional care, but also to all in sound health, and thus prevent, as in the latter case, any necessity to resort to professional advice and treatment.

I have to tender my sincere thanks both to English and foreign authors who have written on the subject of Indigestion and Diet and to whom I have had frequently to refer. I have also to thank my many professional brethren who have so kindly expressed a wish, which the two Editions have realized, for the success of the book.

THOMAS DUTTON.

June 1st, 1893.

THE FIFTH EDITION.

THE popularity of this work continues so great that a Fifth Edition is called for through the Fourth Edition being sold out.

THOMAS DUTTON.

13, Holland Park Avenue,
LONDON, W.

October, 1899.

INTRODUCTION.

Quacks.

NOTHING, I believe, tends more to make the general public seek the advice of quacks and swallow the nostrums advertised so largely in every paper all over the world, no matter how respectable the papers may be (religious publications contain them in greater profusion), than their ignorance of medical matters, the ordinary laws which govern human nature, and that machinery of the body which sets it in motion. Would any mother, no matter how ignorant, give her children teething powders, *so advertised*, if she really knew they were composed chiefly of mercury and opium, two deadly poisons, which should only be prescribed with care and caution by a physician? Unfortunately our law does not protect the public in the matter of patent medicines, for so

long as a three-halfpenny stamp is placed on the box or bottle; the proprietor can call his specific by what name he chooses, puff it as much as he likes, state it will cure any number of diseases, and print testimonials from unknown or imaginary beings with impunity. It is a dreadful state of affairs I confess, and it would be impossible to estimate the number of deaths that are caused, directly or indirectly, either through the poisons contained in the patent medicine, or through the sufferer delaying to consult a qualified medical man until the disease has played havoc with the constitution.

Patent medicine and doctors

People who imagine that doctors run down patent medicines for the reason that fees are taken from their pockets are greatly mistaken, for most of our patients come to us after they have injured their constitutions by taking patent medicines. So far as my experience as a physician goes, I can emphatically say that this is correct, for taking up my case book, and looking through a dozen cases at random, I find no less than eight have taken A.'s indigestion pills, B.'s blood mixture, or C.'s nervine tonic, whereas I find, by my

remarks on the cases, they neither required indigestion pills, medicine for the blood, nor any tonic, but simply advice as to dietetics, with a little saline medicine in the morning. The profession are partly to blame for this state of affairs; they are too conservative, and do not let the lay public know sufficient of the *modus operandi* of medicine to enable them to judge for themselves why certain things are prescribed. There have not been sufficient genuine popular treatises written for the lay public enlightening them on medical subjects, and so rigid is the profession in the observance of that etiquette which requires that physicians and surgeons shall only discuss and argue medical matters in their proper channels, viz., the medical papers, and only advertise their works in those papers, that when a medical author attempts to do otherwise, and solely for the purpose of preventing *quackery*, he runs the unpleasant risk of being accused of advertising himself. I am totally adverse to the medical profession advertising themselves in any way, but I am certainly in favour of the profession educating the public

The profession to blame.

Medical profession advertising.

up to the times, by means of medical works,* free from technicalities and such as can be easily understood, and in this way (which is the only way) combating with quackery: and such books, I think, might with advantage be advertised in high-class papers as are read by the people. In illustration I may mention "Sea-Sickness". now, this is a disease the profession seem to totally ignore, and if they are consulted on the matter they most probably make a joke about the subject, or perhaps prescribe a purgative or antibilious pill. I consider sea sickness (judging from my own sufferings) a very disagreeable and even dangerous disease: and as I had found out a remedy for myself, I came to the conclusion that it would be an act of humanity to publish on a book (which has become very popular) my experiences. Again, in the case of cancer I certainly think the public cannot be blamed, when the profession gives them so little hope,

Cancer and consumption require a popular treatise

* I mean only such works as the general public can be safely trusted with and which, when read, will most assuredly lead them away from the path of quackery. There are some medical and surgical subjects which are only safe when in the hands of the profession.

for trying to catch hold of the last straw and taking secret remedies or any specific—advertised for its cure. Cancer is a disease on which a popular work might well be written for the benefit of the general sufferer, showing plainly its nature and the reasons why it is incurable, what possible action drugs can have on the disease and the benefits of early operation. I may mention another disease, which has got nearly into the hands of quacks, for similar reasons, viz., consumption (*phthisis-tuberculosis*). Medical men do not appear to take sufficient interest in this disease,* and have led the public to believe that it is *incurable*, *i.e.*, doctors cannot cure it, so off the consumptives go to the *clever quack*, and take any *specific* which is brought before their notice. I should like to know who can blame them. I believe consumption is a curable disease, and in proof of this I may say that I know patients now going about enjoying life as usual, who, when they were first treated, thought they had not many months to live.

* This was true when the first edition of this work was published

I am thoroughly convinced that people would not consult any but legally qualified men if they were only properly taught the nature of the disease, and so firm is my conviction that I invariably act on this principle when treating my own patients, to whom I explain carefully the diagnosis I make and the object of the treatment prescribed. I sincerely trust that very shortly the medical profession will see the errors of their ways,* and cast aside altogether the superstitious treatment of the profession in ancient times and the mysteries with which it was then surrounded, and show the world that it is essential for a doctor to be a highly educated, intelligent, scientific man who has no secrets, but studies his profession for the sake of curing human suffering; his sole aim being always the alleviation or cure of all diseases which *flesh is heir to*, not only by drugs, which have

The profession and the times.

* I was in hopes the profession had until the Koch mania or tuberculin fiasco came about. I was the first physician to protest against scientific men making such public fools of themselves by injecting into the living body an unknown substance. (*Vide* protest in a speech delivered at a special meeting of the West-London Medico-Chirurgical Society.)

such *crack-jaw* names, but by a scientific combination of medicine, dietetics, and hygienic principles, the *rationale* of which can be clearly and easily explained—then the world will certainly entertain a far higher opinion of medicine as a science than it does at the present time. Scientific treatment.

CHAPTER I.

GENERAL REMARKS ON INDIGESTION.

Indigestion as a disease

INDIGESTION, *dyspepsia*, *gastritis*, or whatever name you may call it by, is a disease that causes more suffering, pain, and misery than any other disease in the vocabulary of medicine; even more so than cancer or consumption, for these last are not one-thousandth part so prevalent, and when they do attack the body they must soon be cured or death ensues, whereas, in indigestion, no cure or death may take place, but the sufferer drags out a miserable existence, year after year. It is very easy to understand why this is so, for the body is only kept alive and healthy by food, as in a similar manner the steam engine is only kept going by water generated into steam. But the food by itself is of no

Food and the steam engine.

use unless it undergoes certain changes, which I shall afterwards explain; as in like manner the water is useless unless it undergoes changes by heat. Sir Henry Thompson very aptly says: "As certainly as a steam engine requires fuel by the combustion or oxidation of which force is called into action for various purposes—as the engine itself requires the mending and replacing of parts wasted in the process of working—so certainly does the animal body require fuel to [illegible] force, and material to replace those portions which are necessarily wasted by labour, whether the latter be what is called physical or mental, that is, of limbs, or of brain." Nature has made in man a more perfect machine than man will ever make, and has supplied him with every apparatus to transform what we call *food* into that substance which is most easily assimilated and which builds up daily every part of the human body, from the hair of the head to the nails of the extremities. All parts are constantly renewed, and thus it is a true saying that a man has not a particle of the body left with which he

Nature's machine.

Body constantly renewed.

was born. From this it can easily be seen that if the food is not properly assimilated and if it is not of sufficient quantity and quality to help to replace the cells in the different organs which are worn out, malnutrition of the body or of some organ thereof must be the result, and disease the sequence. The amount of mischief that may go on daily (although perhaps not discernible) is very pernicious to a healthy body, and must sooner or later make itself apparent by some organ breaking down. The apparatuses provided to bring the food into such a state that it can be assimilated and thus provide for the wear and tear which is constantly going on, the teeth, tongue, saliva, stomach, gastric juice, intestines, bile, and pancreatic juice, all of which have their work to perform in the various acts of digestion. These acts will be clearly explained in another chapter, but I may say in passing that should any of these be insufficient for the purpose of doing its work, some trouble will take place in the progress of digestion, and dyspepsia be the result. How very important it must

Apparatuses provided for digestion.

be, therefore, if we wish not to suffer, to attend carefully to all this various machinery which has to do with the process of digestion, and how important it should also be for anyone, who has become a victim, to consult one versed in the physiological action of each of these apparatuses, so that the *culprit** may be found out and treated accordingly. All this, I am sure, will be understood after reading the chapter on the physiological process of digestion, which will be clipped of all technical terms, and be thoroughly clear, I trust, to the intelligent reader. I may mention here that, when writing on [illegible] subjects, I always endeavour to avoid [illegible]alities and study to use pure, simple everyday terms and words, so that anyone can read my work with ease and comfort. I cannot think that using grand scientific technical terms, which generally have an ugly sound, and which can be copied from any medical dictionary, adds anything to the reputation

Importance of careful attention to the machinery.

Understood when chapter on Physiology has been read.

Scientific terms.

* If the public would only consult a physician when the first symptoms of indigestion appear instead of spending their money in quack medicine they would be richer in the end both in health and pocket.

of an author. There are some technical words, of course, which must be used, as no others convey the proper meaning.

Some people are born with weak digestive organs, or with some part of the system defective. The most common defect is in the teeth,* which have always a great deal to do in the way of mastication, and with which we cannot dispense if we partake of solid food. Luckily for suffering humanity the profession of dentistry has made such rapid strides during the last decade, and possesses in its ranks such eminently scientific men, that this defect can be easily remedied, not perhaps so perfectly as nature's own work, but *proxime accessit.*

Teeth.

Dentists.

People with deformed or slow digestive organs, are perhaps perfectly able to enjoy life so long as they are careful not to put too much work upon them; but if they do they suffer accordingly, and if ease and rest is not at once given matters get worse and worse, and

Hereditary indigestion

* Mr. A. T. Girdler, Registered Dentist, has kindly made a note of all patients who have consulted him as to their teeth during the last year, and he finds 90 per cent. suffered from dyspepsia.

chronic indigestion, with pain, suffering and malnutrition, soon comes on. It is very easy to rectify this condition, at first, if you take the *bull by the horns*, and at once consult a medical man and follow a course of dietetic treatment. There are very few people, who have passed the age of thirty, who do not suffer from indigestion, or have all their organs perfect. Lucky indeed are they who have—a long and happy life can be prognosticated for them. Considering, therefore, the very great number whom this subject interests, no amount of time is wasted in trying to instil into the public generally the *rationale* of the whole subject. Although defects in the digestive machinery are responsible for a large proportion of cases, these do not compare in number to those caused by *idiosyncrasy* in various foods by different *persons*. * This is a very interesting subject, and there has not been sufficient time and thought devoted to its study. Some have

Indigestion general after the age of 30.

Idiosyncrasy.

* A lady patient of mine cannot eat a single strawberry without symptoms of faintness and a sensation of loss of power in her lower limbs being produced.

violent fits of indigestion after drinking tea, coffee, cocoa, beer, or acid red wine, while in others the very same beverage seems to help digestion. Again, various foods and vegetables, such as eggs, veal, cheese, potatoes, carrots and cabbage act in a very similar manner. I have only just drawn attention to this subject, for it would take half this book to name all the different idiosyncrasies which come before a physician in many years of practice. I consider it sufficient to mention the subject in order to show how important it is for everyone to carefully note what foods and drinks disagree with them, and in what particular manner they do so,* so that in all cases they may avoid them like poison, and by their observation enable their medical adviser to find out, if [redacted] the reason of the idiosyncrasy. Without this information the medical adviser cannot tabulate a proper dietetic card for the cure of dyspepsia, as he might put down a food

Information valuable.

* This is often due, in the case of food, to its being improperly made or cooked, and in the case of drink to its being taken on an empty stomach.

which causes all the mischief. Of course the general rule is that a food which is called *easily digestible* suits most people. I have, however, known patients, suffering from chronic indigestion able to assimilate *cheese* (a not easily digestible food) better than many other foods.

There are many collateral circumstances which have no connection with the digestive organs which may induce indigestion, as, for example, any debility of some of the other organs of the body, for the whole mechanism of man is so interwoven that one part cannot be affected without another part suffering. Constipation is among the most prevalent causes of the disease, and one that creeps gradually upon the patient, bringing in its train consequent suffering. The refuse and effete matter is not carried away from the body, with the natural consequence that the chyle becomes depraved. There is not sufficient stimulus to set the machinery in motion, and consequently we find, as results of such insufficiency, blotches, pimples, and other injuries to the complexion, headache, yellowness of the eye and skin, and altogether an unhealthy ap-

Collateral circumstances.

Constipation—some remarks.

pearance. I will not dwell here on the causes of constipation, as it would take far too long, but I may state that most cases are easily remedied by dietetic treatment without medicine, although there are people who have a natural slow action of the bowels, and these want wakening up constantly by aloes, podophyllin, and saline purgatives; in fact, in all civilized countries, and particularly with those people who live in town, the whole of the alimentary system wants thoroughly *sweeping out* occasionally. It may be most appropriately likened to a chimney which requires the aid of a sweep at regular intervals, or else it gets choked up, the fire will not burn, the smoke cannot escape easily, and some comes back into the room. In the same manner, if the bowels are not *swept out* at intervals they get choked up, and with them the various secretions of the body.

Constitutional disorders. Gout, Consumption, obesity.

Various constitutional disorders, such as gout, consumption and obesity, also have dyspepsia as one of their first symptoms. In the first of these it is due to the poison being in the blood; in the second from a

general debility of the whole system. It should be an invariable practice of the physician to always be on the look-out for these complaints in people who have weak digestion. Lastly, no disease among dyspeptics is so common as baldness (*alopecia*). The hair gets dry, harsh, and easily splits; it loses that beautiful gloss (which is so characteristic of health) and falls out, leaving the scalp dry and scaly, which thus prevents the new hair from growing, or if it does grow it soon becomes diseased and rotten. How often have I had patients who have spent large sums of money over those quack remedies known as *hair restorers*, and had their condition made worse, when a few weeks of treatment for indigestion has gradually restored the whole of the hair lost. Baldness, like nearly all diseases, has many causes, and it is only by diagnosing the cause that the efficient remedy can be applied. * No one remedy

Baldness.

* A thorough examination of the scalp and hair must be made before a physician can give an opinion of its curability. I have seen very great improvement in the condition of the hair after few weeks' proper treatment of the cause which produced the alopecia.

will cure baldness any more than it will dyspepsia. What a blessing it would be, both for the happiness of the world and for medicine, if people would thoroughly digest, read, mark and learn this. I think I have said enough in this chapter to fairly introduce my subject to the reader, and I am sure that all sufferers will be interested sufficiently to pursue the subject further.

CHAPTER II.

THE ELEMENTS OF THE PHYSIOLOGY OF DIGESTION.

These, as I have already said, are very important factors in the process. They are dermal appendages, and are produced from the fœtal covering of the alveolar arches, and are divided into two stages, the deciduous or milk teeth and the permanent. We have to do with these latter. These should be thirty-two in number, consisting of four *incisors*, two *canines*, four *bicuspids*, or *premolars*, four true *molars*, and two *wisdom teeth* in each jaw. They should be free from decay, and the bite, *i.e.*, the way the upper teeth meet the lower, should be perfect. Their use is to articulate properly, and to bite off small pieces of food, and by a chewing, lateral, grinding movement

break it up into fragments, and with the help of the saliva make it into a *bolus*. I wish to lay great stress upon the importance of this movement, for it is often through people becoming apathetic, or through not having sufficient time to take their food, that the worst cases of dyspepsia are due. This is the reason why so many young men who lead solitary lives, and who partake of their meals by themselves, are so often victims; for they, not having anyone to converse with, hasten over the meal as fast as possible,—in fact, *bolt their food*. I have often seen bad cases due alone to this cause, and I have advised them (with the desired result) to read while eating.* When the teeth fall out or are decayed they should at once be seen to. The soundness and quality of the teeth should be a great criterion as to the food which should be taken.

Dyspepsia due to unsound teeth.

Dyspepsia is nearly always associated with unsound teeth, perhaps as much from predisposition as otherwise; also where the teeth are decayed and nerves exposed there is a

* I am aware many scientific men do not agree with me on this point.

nervous dread engendered, which becomes a habit, and the patient bolts the food instead of masticating it. Such teeth should be properly healed or removed, and in the latter case artificial ones put in their places

Saliva is a clear, colourless, and alkaline fluid. (Test,—turns red litmus paper blue). It is secreted from the parotid glands (thin and watery), and from the submaxillary and the sublingual glands (thick and viscid). The former glands are in the cheeks,* and the latter are below the tongue, on the floor of the mouth. Saliva contains 994 parts of water in 1,000, and a substance called *ptyalin*, to which its chemical properties are due, and other minor substances The purposes served by saliva† can be divided into mechanical and chemical. The mechanical consists in keeping the mouth in a due state of moisture, dissolving sapid substances which are thus rendered perceptible to the taste and forms the food into a soft pulpy mass—this is prin-

Saliva.

Purposes served.

* They get greatly swollen in "mumps."

† It has been proved by experiment that the presence of the alkaline saliva in the stomach acts as a very powerful stimulus to the secretion of the gastric juice.

cipally due to the parotid secretions. The submaxillary and sublingual coat the food with a layer of viscid fluid which makes it easy to swallow. The chemical, through the ptyalin, transforms starch, first into dextrine and then into Maltose or grape-sugar, which latter is very soluble. * It acts catalytically, *i.e.*, by mere presence, and acts so powerfully that it can convert 2,000 times its own weight. I may state here that saliva does not act on the oleaginous or albuminoid constituents of the food. During a meal saliva is secreted more abundantly and especially when the food is hard and dry. The mind may stimulate it (from the sight or thought of any luscious food), thus showing the importance of having the food cooked in a savoury manner to the patient's taste. The secretion of saliva is, like all other secretions, entirely governed by special nerves; † but it would be

* Starch is also transformed into sugar in the stomach and small intestiness. Test,—Property of reducing Iodine from a solution of Iodide of Potassium.

† These are the Vaso-motor—Gustatory, Glossopharyngeal (afferent), and the Chorda Tympani branch of the Facial Nerve (motor).

out of place in this work to discuss the intricate nervous system that has power over the nervous organs of digestion; suffice it to point out that any disease or debility of the brain or spinal cord, from which all nerves have their origin, is sufficient to account for many causes of indigestion.

Fright or any mental emotion often causes arrest in the salivary function. The Hindoos have a practice of putting a mouthful of rice in the mouth of a suspected criminal; if the rice remains dry he is condemned.

Act of swallowing.

This takes place in the mouth, the pharynx, and the œsophagus; the act in the mouth is under control, but in the other two, uncontrollable. The masticated mass glides backwards, between the tongue and the hard palate, and is caught by the pharynx through the muscles that elevate the bone, called the hyoid bone, and is carried through the œsophagus (gullet) by peristaltic action, and so finds its way into the stomach.

The Gastric Juice

On its entry into the stomach the food is brought in contact with the gastric juice, which is a clear, viscid, amber-coloured acid

fluid having a specific gravity 1,002 to 1,006 and containing 994 parts of water in 1,000. Besides various salts it contains pepsin, hydrochloric acid,* and lactic acid, to which constituents its digestive powers are due. The quantity secreted in a healthy stomach is enormous (from 10 to 30 lbs.), and quite enough to digest every particle of food taken. It is only secreted when food or some other substance is introduced into the stomach.

Chemical action.

Its action softens, reduces to pulp, and finally dissolves the albuminoid principles of the food, transforming them first into a series of intermediate substances called *peptones*. These substances are like the white of an egg, and are very soluble and diffusible; they are not coagulable by heat or nitric acid. Gastric juice has little or no action on the starchy (*amylaceous*) or the oily (*oleaginous*) constituents. Artificial pepsin can

Artificial Pepsin.

* The Hydrochloric Acid in the gastric juice prevents abnormal fermentation, destroys organisms that may have been swallowed with the food (not pathogenic bacteria—*i.e.*, those which cause diseases) forms active ferments, regulates the peristaltic action of the walls of the stomach and converts albumen into acid albumen.

be prepared by macerating a part of the mucous membrane of the stomach of a pig or the rennet bag of a calf, and adding a little acid. This is the pepsin we use in medicine and which is of great value when the natural pepsin is wanting. Many will wonder why it is the stomach is not itself digested. This does not take place in life, on account of its walls being saturated with the alkaline salts of the blood, circulating in the capillaries, but, according to Dr. Pavy, if the arteries are tied the stomach is soon destroyed. Certain conditions are necessary for the gastric juice to perform its duties, viz., a temperature above 50° and below 120° Fh.*; the fluid must not be neutralized, and the meat fibres (nitrogenous substances) must be divided, softened, and frequently agitated.

Why stomach not digested.

From one to four hours after a meal the contents of the stomach are transformed into a substance called *chyme*, which is a thick, pultaceous, grumous mixture of a strong dis-

Digestion in the stomach

* This temperature being required, it shows how very harmful ices and iced drinks must be to the digestion.

agreeable acid taste and odour. This chyme contains the nitrogenous principles of food, partly dissolved (peptones), starch and amylaceous principles with grape-sugar (*vide* Small Intestines, p. 27). With the chyme are also found oily principles with walls of oil cells destroyed, and in a state of considerable division, but otherwise unchanged (*vide* Bile, p. 32).

Foreign substances may interfere with digestion.

Foreign substances may be taken with the food which may mechanically interfere with digestion, such as would, for instance, precipitate gelatin and albumen in an insoluble form (tea forms with albumen an insoluble tanno-albumen, for which reason an egg should never be beaten up in hot tea). Alcohol when taken undiluted in large quantities precipitates pepsin. Alkalies in large quantities neutralize the acidity of the gastric juice.

Insoluble substances not capable of being digested may be animal or vegetable; for example. cartilage, skin, stalks of cabbages, bone, cucumber, skin, etc. Many foreign substances, such as small pieces of metal, horn, etc., only act as irritants and pass into the intestines.

Liquids and dissolved substances are at once absorbed through the lacteals in the mucous membrane of the stomach and intestines.

Movements of stomach.

The stomach has two movements, a Rotatory or Churning movement which occurs periodically and persists for a few minutes, and Peristaltic which also occurs periodically and forces the food as fast as it is dissolved through the pylorus into the duodenum.

Ferments.

There are four normal fermentative processes taking place during healthy digestion without causing any bad symptoms, and these are accomplished by means of (1) the acetic acid (2) butyric acid (3) lactic acid and (4) yeast.

Intestinal Digestion. Bile, Pancreatic juice.

Bile greatly assists the pancreatic juice in emulsifying the fatty portions of the food. This is proved when stoppage of the bile through its duct occurs. The fluid then in the lacteal vessels, instead of being of milky consistence, is almost transparent, which shows it contains only half the quantity of fat. Pancreatic juice is a clear, colourless, alkaline, viscid fluid, most active about two hours after a meal (14 to 16 oz. a day). It contains 980 parts of water, and a substance known

as *Pancreatin*, besides other salts. It transforms starch into maltose and grape-sugar (as does the saliva) and also helps the bile to emulsify the fatty matter. This is proved by the fæces being full of fat, if from any cause the pancreas is diseased or its duct stopped up. Pancreatic juice is also said to convert proteids and gelantin-yielding substances into peptones, and some into substances called Leucin and Tyrosin. The other intestinal fluid is secreted by the glands which are contained in the whole of the mucous membrane of the small intestines. It is generally colourless, viscid, and alkaline, and is composed of water, salts, and fatty matter. It doubtless has the power to convert into grape-sugar any starch that has escaped the saliva and pancreatic juice.* The object of intestinal digestion is to emulsify fat, and transform any starch into dextrine, maltose and grape-sugar. This is, as already stated, performed by the joint action of

* In a case where the food was introduced directly into the lower part of the bowel it was found that the albumen was dissolved, starch converted into sugar, but the fats were not acted upon.

bile, pancreatic juice, and intestinal fluid. I have shown that the oleaginous principles of the food left the stomach in a fluid condition; they are here emulsified by the joint action of the bile and pancreatic juice, and thereby rendered capable of being easily absorbed. Vegetable matter is principally digested in the small intestines. * All the changes take place principally in the upper part, and are continued to some extent to the anus, otherwise it would be useless to give *nutrient enemata*, which is carefully explained in my pamphlet (*Gastric Ulcer: Cause, Pathology, Treatment, and Cure*).

The effect of the disturbance of the fluid is so fully exemplified in sea-sickness that I cannot do better than quote from the 2nd edition of my work on "Sea-Sickness: Voyaging for Health," page 13:—"The vomiting is the "most prominent symptom in sea-sickness. "First, all the food is thrown up; then Nature, "in her goodness, at once steps in, and a "large quantity of saliva and gastric juice is "secreted, which doubtless is intended to digest

* This accounts for the great length of the small intestines in herbivorous animals.

"the food. This also is thrown up; after that "bilious matter is ejected, and with this, if the "vomiting is very severe, blood. These several "symptoms enumerated do not take place "without bad effect. They throw nearly the "whole of the organs of digestion and circu- "lation out of gear; this is why it is so "important for voyagers, who suffer much, to "be very careful for a few days, in both food "and drink, or else other diseases will very "possibly supervene."

The functions of the Liver.

I do not think it will be out of place here to give a short account of the functions of the liver, as it is an organ that is such a trouble to many of us, and has much to do with most forms of indigestion. It frees the blood from foreign substances and effete matters which in part will ultimately undergo the same destination as grape-sugar. *

The albuminose that has passed through the liver has a change impressed upon it, in virtue of which it is incapable of percolating through the walls of the finer blood-vessels

* The grape-sugar may, however, in part be converted into fat and deposited as such.

(the arterioles and capillaries). Hence the liver is called an assimilating organ, albuminose is rendered fit for nutrition, and carbohydrates, through the agency of a ferment, are converted into grape-sugar and this is absorbed, or may be entirely burned off with the production of carbonic acid (Co^2) and water (H_2o) thus giving rise to animal heat. * The chief function of the liver is to secrete bile, which it does to the extent of 2 to 3 lbs. daily. This process is never interrupted; it is, however, greatly accelerated soon after a meal, and is forced through a small tube into the intestines, and when not otherwise required is stored in the gall bladder. (This tube has the very high-sounding name of *Ductus Communis Choledochus*). Bile is a heavy, viscid, greenish-yellow fluid, very bitter and slightly alkaline and having a specific gravity of 1,020. It contains water, salts, fats, colouring matters, and a substance termed Bilin. The chief fat is called Cholesterin. The following table

* When either cane sugar or albuminose is injected into the portal vein it is assimilated. If, on the contrary, either of these is injected into any other vein it is eliminated through the kidneys unchanged, showing the action of the liver.

shows the relative proportions of these various constituents in 1,000 parts of Bile.

Bile	... ...	1,000 parts.	
Water	... ...	860 „	
Bilin	... ...	90 „	Taurocholic Acid. Glycocholic Acid. combined with soda.
Fats	... ...	9 „	Olein. Margarin. Cholesterin.
Salts	... ...	7 „	Soda. Potash. Magnesia. Iron. Copper.
Colouring matter with Mucus		about 30 „	Biliverdin green. Bilifulvin yellow. Bilirubin red.

Uses the bile serves.

Bile is secreted mainly from the portal blood; the bilin, etc., do not pre-exist in the blood, but are formed in the liver itself. The following are the various uses bile serves:—

a. It greatly assists the pancreatic juice in emulsifying fat, and facilitates its absorption through the mucous membrane of the intestines.

b. Prevents the decomposition and putrefaction of the food during its passage through the intestines.

c. Acts as a slight purgative, increasing both the quantity of the fluid secreted by, and the vigour of the peristaltic contractions of, the walls of the intestines,*

d. It is in part recremontitious, *i.e.*, the essential constituents are very rich in Carbon and Hydrogen as compared with Oxygen and Nitrogen—viz., the Bilin is burned off in the capillaries and is a potent source for maintaining the temperature so essential in a warm-blooded animal. †

Part of the bile, however, is excrementitious, § the cholesterin which is eliminated without undergoing chemical change.

* * Patients have constantly consulted me for constipation,—about which they had become quite disheartened,—which was merely due to a scanty supply of bile, and yielded at once when the bile was increased.

† In hot climates the liver is more active than in cold climates. It therefore behoves a man to be very abstemious when he "crosses the line," his liver having plenty of work to do without putting on more fuel; it will soon become diseased if he does.

§ This excrementition is proved by the secretion being actively carried on during intra-uterine life, and during the winter slumber of hibernating animals.

Bernard's Theory.

Before concluding this chapter I must allude to what is known as "the glycogenic function of the liver," *i.e.*, the power of forming sugar. Bernard found that sugar is not formed by the liver, but is preceded by a substance called glycogen (starch). * This transformation of glycogen into grape-sugar is constantly taking place, even after death. The glycogenic function of the liver is, therefore, to a certain extent, independent of the absorbed products of alimentation. It has, however, since been found that the above theory is in error and that the glycogen (starch) is formed in the hepatic cells, as it can be extracted from the liver in the form of a white flocculent tasteless substance, soluble in water, and having the same chemical composition as starch, sugar, and dextrine. There is little or no sugar in the liver during life, but it can be artificially produced by certain drugs, such as strychnia, or by irritating certain portions of the brain. The general belief now is that glycogen is in a transitory state, and becomes finally turned into fat.

* This is hepatin, according to Dr. Pavy.

The whole of the digestive processes may be shortly tabulated as follows:

1. *Saliva contains*

Ptyalin or salivary diastase, and converts starch into dextrine, maltose or grape-sugar.

2. *Gastric juice contains*

Pepsin which changes proteids into peptones in the presence of an acid.

Rennet ferment which precipitates the casein of the milk.

3. *Pancreatic juice contains*

Pancreatin or Pancreatic diastase, changing starch into dextrine and grape-sugar. An emulsive and curdling ferment which emulsifies and saponifies the fat and precipitates the caseid of milk.

Trypsin which changes proteids into peptones in alkaline solutions

4. *Bile*

Assists in emulsifying fat.

Prevents decomposition and putrefaction of food during its passage through the intestines.

Acts as a slight purgative.

5. *Intestinal juice*

Neutralizes the acid contents of the stomach, contains invertin which changes cane-sugar into invert-sugar.

CHAPTER III.

GENERAL CAUSES OF INDIGESTION.

Teeth. As I have already stated decayed teeth are a very frequent cause of indigestion. They prevent the proper mastication of the food, the fibrous substances in meat are imperfectly divided, and therefore the *bolus* leaves the mouth in an unsuitable condition for the juice of the stomach to act upon it. In children very often some portion of the nerve is exposed, and the child will not bite on that side of the mouth,—it is impossible to chew perfectly with one side only. The teeth may be sound, but the *bite* may be defective. Here again is a cause that is Dentists. difficult to remedy. Dentistry fortunately comes to our aid, and, by stopping the teeth and providing new ones, this cause of indi-

gestion, except among the poor, is getting rarer every year. I would strongly advise all who value health to have their mouths carefully inspected every six months, so that the slightest sign of decay may be detected and filled in. It is a very disgusting habit for people to go about with decayed teeth; which are not only a great annoyance to themselves and everyone who has occasion to come near them, but also causes of disease. The teeth are not only a most useful apparatus for the purposes of digestion, but are among the most ornamental features of the face. Everyone should use a toothpick every night, and then the teeth should be brushed either with cold water or antiseptic dentifrice. I always examine the teeth if I wish to know the state of the stomach; they are a most valuable guide. Place a piece of blue litmus paper over the gums and teeth, and if there is any acidity it will become at once red. It is the acid being constantly in contact with the enamel which causes the teeth to decay; people suffering from it should rub some white precipitated

To preserve the teeth.

chalk between the gums and teeth after cleaning them. Again, the condition of the mouth may prevent the act of mastication from being efficiently performed, this occurs in cases of soreness of the gums or paralysis of the muscles used in chewing.

Saliva

Saliva may be too abundant or deficient, or the chemical composition may be altered; and considering the work it has to do in making the *bolus* soft, and changing the starchy matter into sugar it is very important it should be healthy. By placing a piece of red litmus paper into the mouth one can tell as to its alkalinity, as it should turn it a bluish colour.

We must leave the *bolus* to slide down the œsophagus into the stomach, taking for granted that there is no disease of that tube. There might be *stricture* or *cancer*, both of which diseases would have a considerable effect on digestion, and be frequent causes of indigestion. From the chapter on physiology it will have been gathered that the gastric juice must be of a proper quality. It must not have an abundance of hydro-

Gastric juice and the stomach.

chloric acid or a deficiency; if either the one or the other the digestion will not go on regularly. If the peptic secretion does not contain a sufficient proportion of pepsin the albuminous or fleshy part of the food will remain undigested (albuminous food—lean meat, glutinous part of farinaceous articles, white of eggs, etc.) The rennet—ferment—may be deficient, preventing the coagulation of the casein in milk. Then, again, the fats and oil may not be acidified, and the emulsion not properly prepared for the bile. The cause may lie in the stomach * being too dilated, atrophied, or its containing some disease, such as *gastric ulcer*, *cancer*, or *stricture* of the *pylorus*, † or having the mucous membrane diseased, all of which, it can be easily understood, prevent the stomach from contracting upon its contents, and so bringing the gastric juice into contact with the undigested parts

* From abnormalities in the muscular movements of the stomach the food may remain longer in the stomach than it should do and abnormal fermentation set in, or, on the other hand, the food may not remain long enough exposed to the action of the gastric juice.

† The stricture at the pylorus (end of the stomach) may be either organic (permanent) or due to spasms

of the food, the mucous membrane not being in a proper condition to absorb the peptone, so-called, through the veins and lacteals.

Changes in the mucous membrane.

Degenerative changes in the mucous membrane of the stomach take place from long continued chronic catarrh, which produces atrophy of the glandular structures of the stomach walls. The coats become thinner and secretion of the gastric juice greatly diminished.

Bile and pancreatic juice.

The food may have come from the stomach properly acted upon, and yet indigestion be due to either the bile or the pancreatic juice, which, if not of a natural chemical composition, cannot emulsify the neutral fats, nor turn the remains of the starchy food into sugar. The fæces may not be acted upon antiseptically by the bile being deficient or on the contrary, if too abundant, diarrhœa is the consequence.

Duodenum and small intestines.

These may interfere with digestion from similar causes to those I named in speaking of the stomach. These causes may lie in the mucous membrane or the coats of the intestines, and so prevent the proper secretion of the fluids above described, and conse-

quently occasion the non-digestion or the delay in digestion of its contents.

The food may be hurried along too quickly or too slowly.

The refuse is then carried into the large intestines called the *colon*. Little or no digestion takes place in the different parts of the colon, the contents being merely fæcal matter and gases, which are generated by fermentation of the food. If, however, the coats of the colon are unhealthy these are not expelled quickly enough, and constipation is the result (*vide* Constipation). The Colon.

Undoubtedly many people are born with a faulty condition of the organs of digestion or the nervous system, and this condition is liable to be transmitted from parent to child. Inordinate mental activity, active competition, the struggles for existence coupled with the desire to get rich or the disappointment of failure—are all so many hereditary poisons in the blood of the parents, and are most frequently the causes of the weakened constitutions or impaired digestive organs of their offspring. Heredity.

Advanced age.

All our organs undergo structural changes as we go down the hill of years, and little wonder is it that the stomach, which has from babyhood had an inordinate amount of work to do, should be the first to undergo these changes, which evidence themselves in an impaired muscular action of the walls of the stomach, a deficient secretion of gastric juice, a sluggishness of the gastric nerves and a hardening (atheromatous) condition of the arteries. Therefore as years increase extra care should be taken with the diet.

Nervous system. *

Anything that disturbs the nervous system must interfere with digestion, for the nervous system governs the whole of the movements of the digestive organs. The *nerve tone* all over the body being below par may produce a similar condition in the sympathetic nerves which regulate the muscular movements of the stomach and the supply of the gastric juice. This want of *tone* is often met with in the ill fed, the badly nourished or those

* Dr. G. M. Gould states he has found that in the young of either sex and in adult females, their first spectacles produce loss of appetite, and dyspepsia and nausea often set in.

who live in unhealthy surroundings and bad air.

We get abnormal sensations from the disturbances of the nervous system (which is called "neurasthenia"), such as palpitation of the heart, hysteria, anæmia and functional disorders of the sexual organs. Reflex irritations* of other organs may be transmitted to the stomach to produce vomiting and other gastric disturbances. These reflex irritations are produced by diseases in the brain, liver (gall-stones), uterus (cancer, &c.). Generally there is a hypersecretion of gastric juice in these cases.

Among the indefinite causes, none have so much to do with indigestion as the influence of the mind; a cheerful, contented, well-balanced mind goes generally with a sound digestion, but grief, worry, nervousness, and anxiety have the opposite effect. Attend, therefore, to the *dietetics of the mind* as much as to the *dietetics of the body*. I have known many cases of malnutrition due to anxiety

Influence of the mind on digestion.

* Irritation of the sympathetic nerve greatly increases the gastric fluid. Paralysis has the same result. Hence, mental trouble may abnormally influence the secretion.

over love affairs. I have a patient who has lost 18lbs. from this cause alone, and if "little Dan Cupid" does not smile propitiously, it has so great an effect on her that her appetite becomes impaired and the food she takes remains undigested; but as soon as the path is made pleasant again, she is at once cured, showing the extraordinary power the mind has over digestion. *

Alcohol is the next important cause, and to it must be allotted some of the very worst cases of dyspepsia. If taken strong and new it inflames the mucous membranes, causing congestion; this occasions secretion of phlegm, want of appetite, furred tongue, bad breath, and vomiting; in fact, the alcohol acts as an irritant to the whole of the digestive tract. Spirits, wine, and beer should always be of the very best quality, should only be taken when the stomach is full, should be drunk slowly, and spirits in addition should be well diluted with water. A glass of port wine taken at one drink after a meal might cause

* In the case quoted no ordinary treatment seems to be of any avail.

a very bad fit of indigestion, whereas the same quantity sipped slowly might aid it. (*Vide* further remarks on Alcohol. p. 142.) The drunkard is nearly always a dyspeptic, and no amount of medicine or dietetic treatment will be of any use until he gives up his vicious habits.

The drunkard generally a dyspeptic.

Dr. George Herschell says in "Health Troubles of City Life":—"To remove the sense of fatigue caused by overwork by the consumption of alcohol is to close one's ears to the voice of Nature. The weariness of the brain is a protest against further exertion."

When taken in large quantities cause the stomach to be filled with a diluted saccharin fluid, full of germs ready to set up fermentation and produce flatulent dyspepsia, loss of appetite and other troubles. The eating of sweets is a common habit among children and young girls, who spend most of their pocket-money in their purchase, besides being supplied plentifully with jam, etc. at home. I am not one of those pessimist physicians who insist that all carious and decayed teeth are due to sweet eating, that other ailments of childhood

Sweets, Jams.

are generally brought on by this practice, and that sweets are *fiends* which should never be allowed to enter the house. On the contrary, I rather sympathize with young people in their taste for such sweetmeats as butter-scotch and the like, which if indulged in with moderation will not be productive of much harm. Unfortunately, however, this moderation is rarely practised and consequently the digestive disorders I have before mentioned result.

Occupation. This naturally has much to do with indigestion, and produces many kinds of the disease, impossible to cure unless the occupation is given up: but in many cases we can alleviate the symptoms by cautious dieting. Painters, from the white lead they use; all grinders, from the foreign particles that come from their work; paper-hangers, from the arsenic in the paper, and others who must pass their time among poisonous chemicals, are all more or less prone to be martyrs to dyspepsia. Then there is another class, viz., those who are engaged in sedentary occupation, such as professional men, clerks, milliners, teachers, shoemakers, etc.;

then, again, there are those who lead too active a life, or, at least, have to follow their calling when digestion is still going on, such as postmen. This is very bad, and shows the wisdom of the saying, "After dinner rest awhile, after supper walk a mile." (The author evidently supposed supper to be a *light* meal.)* People cannot generally change their occupation, but they can regulate their meals in accordance with their occupation, and so prevent the pangs of the disease. The complaint is also very common among shop-assistants, dressmakers, and those who earn their livelihood by the needle.

Regulation of meals to accord with occupation.

The wonderful strides which have been made in this science of late years, and its bearing on most diseases, make one of necessity refer to it when discussing the causes of bad digestion. This, perhaps, is slightly difficult to understand at first, but we have only to consider that we owe our very existence to pure air, and that if the blood is not properly oxygenated the circulation is impeded, and

Hygiene.*

* The reader, if he is interested in this subject, should read carefully the author's work on Domestic Hygiene.

congestion of every organ is the result. Close, unventilated rooms, in which gas is burnt, living in low damp places, relaxing climates, or climates which are hot and moist, all produce serious mischief to digestion. Long exposure to cold and wet will arrest normal digestion; as, for example, taking a long cold drive and getting thoroughly chilled, or taking a cold bath

Various diseases cause of indigestion

Various diseases, such as Heart disease, Kidney disease, Liver diseases (see p. 92), Gastric Ulcer (see p. 85), Cancer of stomach, Gout (see p. 96), Rheumatism, Bronchitis, and Phthisis—all interfere more or less with the digestive organs. Diseases of the heart and kidneys causes indigestion, either through producing congestion of the mucous membrane of the stomach, or through the poverty of the blood due to the drain of albumen from the poison of urea being in the blood. * Phthisis † and Bronchitis, from their general debilitating

* As the whole of the blood passes through all the organs in the body, it naturally follows that any contamination of it will injure these organs.

† Vomiting in Phthisis (consumption) is a very early symptom, and often comes on after a fit of coughing.

effect, weaken the gastric juice, which becomes deficient in pepsin, and there is often an absence of free hydrochloric acid. When these diseases are far advanced disease of the secreting surface is frequently met with. In Cancer also we get the gastric juice profoundly altered in composition.

CHAPTER IV.

SYMPTOMS OF INDIGESTION.

BEFORE I describe the diseases of the stomach which have so much to do with dyspepsia, it will be well to clearly define and explain the various symptoms whereby we are able to diagnose to which class the disease belongs. For example, when I speak of *pain*, the intelligent reader will want to know the kind of pain (whether dull, sharp, stabbing, or pricking, continuous or intermittent) and its position. It will, therefore, be an advantage to describe each symptom of indigestion fully; this will save repetition, as it will be seen that many diseases have some of the same symptoms.

Appetite. We may have either loss or excess of this. In the former case this may be caused by a

furred tongue, and the mucous membrane of the stomach being covered with mucus; bad news anxiety or fear (examinations, for example) drinking; disturbance of the nervous system as in hysteria, cancer, and ulcer of the stomach. In the latter case the excess may be due to abnormal growth in the young. We must be careful to distinguish hunger (bulimia) from simply excess of eating and drinking (polyphagia). We get this bulimia in many chronic diseases—such as, Diabetes, Phthisis, Menorrhagia, Neurosis of the stomach, Hysteria, and also from worms in the intestines.

Acidity.

This is a common symptom of all causes of indigestion; it is closely connected with flatulence, and is due to fermentation or an abnormal secretion of gastric juice. It is a sensation of heat and constriction either in the epigastrium or the throat, and is caused by the irritation of the mucous membrane of the upper part of the stomach and lower end of the œsophagus. Unsuitable food, or food eaten in too large quantities, ferments through the gastric juice not being able to keep it antiseptic. Any disease of the mucous

lining of the stomach, or any obstruction to the onward passage of food, will cause it. The eructation into the mouth takes place either after prolonged fasting or a few hours after a heavy meal. The kind of acidity due to abnormal secretion of gastric juice is caused by some inflammatory condition of the peptic glands or irritation of the nervous system. (*Vide* Nervous System, p. 42.) This irritation may be due to the presence of an ulcer, cancer, or vegetable organism (*sacrinæ*), or to some poison in the blood, such as gout, which, long before it shows itself outwardly, is a very frequent cause of this symptom. People who drink large quantities of beer and acid wines generally suffer, not only through the dilution of the gastric juice in the stomach, but from a general acidity of the blood, which produces an abnormal secretion. Again, anything that produces plethora or anæmia produces acidity. In chronic inflammation of the stomach, the food undergoes fermentation through the presence of phlegm. Lastly, the acidity may be entirely due to reflex action, from the

May be due to ulcer, cancer, gout, &c.

irritation of a gall-stone, or disease of the heart, liver, or kidneys.

This is entirely due to fermentation. The gas accumulates in the small bowels, and gets shaken up with the fluid contents, causing a rumbling noise. It occurs chiefly in the right side, and is most uncomfortable and unpleasant for young ladies, when visiting, particularly when they increase it by lacing too tightly. It is very often of a nervous origin, but more frequently due to a want of attention to dietetics and the regulation of the bowels.

Borborygmi (Grumblings of the belly).

People often look upon cramp and spasm as one and the same symptom, but they are entirely different, although often associated together. Cramp is an involuntary contraction of the muscular fibres when there is no distension. Spasm is when the bowel or stomach, after having become distended, tries to recover itself. The cause of cramp is generally irritation, some indigestible food or acid, unripe fruit or irritant poison. Anything suddenly taken into the stomach, and especially, iced water, will produce it, or a

Cramp in the stomach.

large quantity of iced effervescent water. Continuous acidity is also another cause. The spasm of gall-stones are often mistaken for cramp of the stomach, the gall duct passing so near the stomach, but the pain of the former is true spasm. It is well, therefore, for anyone who is constantly suffering from cramp to seek advice, for it is quite an abnormal symptom.

This is hardly a symptom, but a consequence of other symptoms of flatulence, fermentation, and constipation. It is caused by a sudden ejection of wind (gas) or fluid from the stomach into the mouth. If any high-smelling food has been eaten, such as onions, garlic, etc., the breath has a disagreeable and offensive odour of those substances. It is seldom attended with pain, and is very disagreeable, but seems to give temporary relief. The eructation is, to a certain extent, voluntary, and is more common to old men and women.

In the nervous and irritative form of dyspepsia this is a very prevailing symptom. It is a sensation of sinking, as if the stomach

required food, although a full meal may have lately been taken. This feeling is sometimes due to the fact that the food has left the stomach in a half-digested condition, and the gastric juice not being totally exhausted, makes known its presence, and wants more food to act upon. It may also be due to some organic disease of the stomach (cancer, ulcer, etc.), or some functional derangement of nerve power of the stomach. People who pass their usual meal-times frequently complain of emptiness.

Fulness and weight.

This condition is the opposite to emptiness. It is caused by eating too much at a time, or eating too frequently before the previous meal has been digested. The most ordinary cause is when men in business, students when studying hard, or those whose minds are overworked or filled with anxiety, eat a full meal. The mind being previously engaged does not attend to the digestion of the food—hence fulness and weight. The sensation of a leaden ball being in the stomach is due to a large mass of undigested food. These symptoms are common in atonic, irritative,

and nervous dyspepsia. In a sound, healthy stomach the owner thereof should never know he possesses such an organ.

Flatulence. It is well to clearly understand the difference between flatulence and pyrosis, although they are frequently met with in the same disease. Flatulence is an eructation of wind (gas*), and pyrosis of fluid. No symptom is more frequent and distressing than flatulence, which produces difficulty in breathing (dyspnœa), particularly in old, nervous, or hysterical people, and all those *who live to eat, and not eat to live.* Its causes are numerous. The principal one is due to fermentation, caused by any stoppage to the food leaving the stomach, when from the presence of vegetable organism the gastric juice loses its antiseptic quality, the food decomposes, and carbonic and sulphuretted hydrogen are formed. Any disease which produces an unhealthy state of the mucous membrane of the stomach favours fermentation. The absence of bile may produce flatulence, as bile

* These gases consist of carbonic acid, hydrogen combined with nitrogen, and sulphuretted hydrogen.

acts as a powerful antiseptic and prevents the decomposition of the food. The mucous membrane may itself secrete gas independently of the kind of food taken. * Flatulence is a dangerous symptom in people who have heart disease, for the distended stomach may press on the heart through the diaphragm and produce stoppage and even death. Fainting (syncope) is also produced in some cases.

Another cause of flatulence is one which has nothing to do with the organs of digestion, but entirely with the food eaten. Vegetables (peas, beans, etc.), starchy, and particularly saccharin foods, often ferment. Malt liquor often undergoes acetous fermentation from the heat of the stomach. Large quantities of tea, wine, starchy food, fat, and bread—all produce flatulence. When the gas goes beyond the small intestines it is expelled downwards; this accumulation in the intestines often causes spasm. The different kinds of

* Case 1. W. B. This was a most obstinate case. The patient had lived in perfect misery for eight years. He came under treatment Feb. 13th, 1892. One month afterwards, under a careful regulated diet, this distressing symptom had almost disappeared.

gas which escape point to the kind of food: for if animal albumen (meat and eggs) has been eaten, a smell similar to that of rotten eggs (sulphuretted hydrogen) will be experienced; if amylaceous or starchy food, it is nearly inodorous (carbonic acid or carburetted hydrogen). Patients nearly always tell me that the first symptom they notice is constant belching of wind.

Headache

Headache is another symptom closely associated with all forms of indigestion, more particularly chronic gastritis and those due to the liver; people often speak of it as "bilious headache." The causes are, as before stated, due to congestion of the liver and stomach, also to sluggish action of the bowels, sleeping after a heavy meal, walking too much after meals, going too long without food, or anything that suddenly stops digestion. It may be attended with much vomiting, nausea, and giddiness. The degrees of pain may be very great, from a dull pain over the forehead to a lancinating, acute, sharp pain all over the head, or anything between these extremes.

Heartburn is a consequence of acidity; the acrid fluid in the stomach causes a sensation of intense heat and burning. This intense acrid fluid is due to butric acid. It often rises in the mouth and occasions a most disagreeable sensation and taste. It takes place at the end of digestion. The chief cause is eating too rich and oily food, or food liable to fermentation, or in not attending to calls of nature regularly. Heartburn.

A most unpleasant symptom, although attended with little consequence. It is due to spasm of the diaphragm (a large muscle that separates the chest from the abdominal cavity), and sometimes to an irregular action of the muscular fibres of the œsophagus (gullet) and upper portion of the stomach. Anything that has the effect of interfering with the action of the pneumo-gastric nerve produces it, such as aromatic stimulants, or through the stomach being over-distended with gas or liquor. Sometimes it seems of a purely nervous origin, and is quite under the power of the will. Drunkards and nervous people suffer from it most. Hiccough.

Is a feeling of languor, a disinclination for Inertia.

bodily or mental work, and often becomes a symptom of dyspepsia. Parents often blame their children for it, give them tonics, change of air, etc., without guessing the real cause, which is really malnutrition. If the cause is not cured, the patient becomes irritable, peevish, loses interest in everything, the memory becomes defective, and the brain even seriously impaired. This symptom is more common in the irritative, atonic, and nervous forms, which are brought on by worry and mental overwork.

Pain *before* or *after* eating

I must describe these separately, as the causes are so different. Pain is a symptom of nearly every form of indigestion; it only varies in degree. Pain before eating is due to organic disease of the stomach, particularly ulcer of the stomach. This is generally severe and of a sharp, stabbing kind, which may be relieved by a little food; but this relief does not last long, and the pain soon returns with greater intensity and is only relieved by vomiting, or by the food passing into the intestines. It is referred to the region of the stomach below the cartilage.

Gastrodynia, or stomach cramp, is of a nervous origin, and may take place in the night hours, after any food has been taken; it is frequently met with in women and nervous men at middle and old age. The presence of acidity, pyrosis, or flatulence often produces pain before meals, and sometimes it is produced from the stomach being empty too long, in which case it can be relieved by taking a little food or water. Pain is often supposed to lie in the stomach, when it is really the liver (gall-stones), or the muscles of the walls of the abdomen which are at fault. Stomach cramp.

Pain after eating is more common than the pain just described, and where it is not from ulcer of the stomach, cancer, or acute gastritis, it is the result of a slow or [illegible] digestion or from chronic inflammation of the mucous membrane of the stomach. The pain comes on soon after food is taken, and lasts until it leaves the stomach, and, as I have already said, it may vary from a Pain after eating.

* Any foreign substance or extremely indigestible food may cause pain even when the stomach is perfectly healthy.

feeling of uneasiness to an unbearable, sharp, cutting pain. In a healthy stomach where the meal is normal (one of mixed food), there should not be even the least discomfort. People who have been sea-sick for a long time may suffer pain for a considerable period; this is due to the continuous straining the muscular fibres of the stomach have undergone. (*Vide* "Sea-Sickness: Voyaging for Health.") This is also the case in the chronic vomiting of pregnancy, or ulcer of the stomach.

Pyrosis. Pyrosis or water-brash is a rising of acid, neutral or tasteless fluid, into the mouth. The mucous membrane of the stomach *waters* in the same way as the mouth waters, or the skin *perspires*. It is an extra secretion of saliva, gastric juice, and other gastric secretions that causes *pyrosis*, and it is due generally to nervous influences; these may be reflex or direct. Reflex—due to irritation from gall-stones, dentition, pregnancy, or diseases of the womb; direct—to cancer or ulcer of the stomach, or certain articles of diet, such as oatmeal.

This occurs in nervous females who suffer from uterine troubles, lads, and imbeciles. They often have an appetite for some extraordinary food—wood, brown paper, flies, cinders, etc.—but they will not take proper food. This want of a healthy appetite in young people shows some derangement in the nerves which govern the sense of taste and the gastric system, and should be carefully inquired into by the parents or guardians of young people so afflicted. In old people it is often a part of the general decay, and in imbeciles a part of the disease. Pica.

Of all the distressing symptoms this is by far the worst and most alarming. I have known patients suffer agonies of mind from the thought that they had heart-disease and might die at any moment, when on most careful examination of the heart I found it perfectly healthy, and only liable to fits of palpitation through indigestion. The chief cause of palpitation and intermittent action of the heart is through the stomach becoming distended from flatulence or fluid, etc., Palpitation of the heart.

* From pica, a magpie.

and pressing on the heart, and that is the reason why a sudden eructation seems to relieve this symptom. The palpitation is often accompanied by shortness of breath, pain over the region of the heart, and flushings of the face, and may last during the whole period of digestion.* Through the disturbance of the circulation you may get a permanent flush, which has a nasty way of settling in the *tip of the nose*,† and which is greatly aggravated during the period of digestion. Another cause of this palpitation and irregular action is entirely nervous in origin, and often associated with other nervous diseases of the stomach.

Redness of nose.

Spasms

I have explained the difference between spasms and cramp (*vide* Cramp). The common term for spasms is "gripes". They are caused in nearly every case by hard, indigestible food, or through the stomach being

* Many deaths have taken place in old people with weak or fatty hearts, from overloading their stomach with food, particularly shortly before going to bed.

† This symptom may lead the uncharitable to the suspicion that alcohol in some shape has been too freely indulged in, whereas it often occurs in those who are abstainers.

too weak to digest, and occur several hours after a meal. Spasms vary from a mere griping pain to a severe spasm, which may bend the patient double; in fact, the pain may be taken for inflammation, but, unlike inflammation, there is no tenderness on pressure.

Stomach cough.

People liable to a catarrhal state of the mucous membrane of the stomach are liable to a dry, hacking, irritable cough, without expectoration. It is most troublesome the first thing in the morning, when mucus may be vomited. There is always a certain amount of congestion of the back of the throat and uvula; in fact the disease seems to be more in the throat than in the stomach. The general health is not affected. It is a general symptom with those who drink beer or spirits freely.

Eruptions of the skin.

Those who suffer from indigestion, in any form, are more or less liable to eruptions of the skin; the most common is nettle-rash, though *erythema*, *acne*, or *herpes* are not uncommon. All these eruptions are caused through the blood containing some impure substances, produced either through the mal-

assimilation of food or the production of chemical impurities, and which are not carried away by the excretory organs (kidneys, liver, lungs, and skin). I believe myself that the rashes are also caused through gases in the intestines due to fermentation, being absorbed into the blood.

Urticaria (Nettle-rash).

Urticaria is characterized by formation of prominent patches or weals, which often appear and disappear suddenly, accompanied by heat, tingling and great itching. This is often due to derangement of the digestive organs, which may be caused by the eating of shell-fish, mushrooms, cucumbers, cheese, pastry, and bitter almonds.

Erythema (to cause blushing)

This is characterized by slight superficial red patches, irregularly circumscribed, of variable form and extent. Most frequently seen on face, chest, and extremities.

Herpes (to creep)

This consists of a cluster of vesicles upon inflamed patches of irregular size and form, usually on the upper lip. There is another variety called *shingles*, forming a band of clustered vesicles, encircling half the circumference of the body, and often attended with severe neuralgic pain.

When food is taken too near to the hour of sleep it frequently causes restlessness, nightmare, and irritable sleep. It may be laid down as a maxim that good digestion means sound sleep, such as one observes in a healthy infant. Sleeplessness is also caused by an empty stomach (which produces flatulence), anxiety, and anything that may suddenly stop natural digestion. I have often been consulted by students who suffer from anxiety, wakefulness, and nights disturbed by bad dreams, who have attributed these troubles to their studies, whereas they have been entirely due to indigestion brought on by leading too sedentary a life and not giving Nature sufficient time in which to do her work. Sleeplessness may also be caused by drinking too much champagne or other aërated drink, which produces distension of the stomach, by the gas evolved, and spasm of the pylorus. The stomach presses against the diaphragm which in turn presses on the heart, we then experience the symptoms of palpitation and irregular action. Sleeplessness.

Thirst is a symptom of dyspepsia as well Thirst.

as fever. It is produced by an inflamed condition of the mucous membrane of any part of the alimentary system. Catarrh of the stomach always produces thirst, and the greater the catarrh, the greater the thirst; a very simple reason why drunkards always suffer from that symptom. The tongue is furred, dry and sometimes cracked, and the bowels are very irregular, caused to a great extent by the amount of fluid (especially malt liquor and spirits) taken to relieve the thirst.

Retching. This is a reflex action caused by the involuntary peristaltic action of the muscular fibres of the œsophagus (gullet) and the upper part of stomach being reversed, so instead of the food going downwards it comes upwards; this being an abnormal action, pain is the result. Retching, if it goes on for any considerable time, involves the intestines by reflex action, and you get bile poured into the stomach. In an extraordinary case (noted in "Sea-Sickness: Voyaging for Health") of a lady, who was sea-sick and retching all the way from London to New Zealand, the muscular fibres of the œsophagus became quite paralyzed

from nervous exhaustion. Hard drinkers and those who destroy their digestive organs by abusing them, generally suffer from retching, but it may also be produced by irritation from the other organs.

There is a great difference between vomiting and retching, and they are due to entirely different causes, although the two symptoms may go together. The former has entirely to do with the stomach, the latter with the œsophagus (*vide* Retching). Vomiting may be due to a variety of causes, the principal being pregnancy, sea-sickness, bilious and gastric ulcer, cancer, alcoholic drinks, paralysis of the muscular walls and narrowing of the œsophagus or pylorus (from cancer or spasms). Bilious vomiting is caused by congestion of the liver; but bile is often vomited which is not due to bilious vomiting, but to constant strainings, the muscular effort forcing the bile upwards. In gastric ulcer there is a certain amount of blood mixed with the vomit, which generally takes place soon after food is taken. The simpler causes of vomiting are acidity, eating too fast, overloading the stomach,

Vomiting.

Causes.

Gastric ulcer.

eating indigestible food, and excessive drinking. The stomach may be free from disease, but there may be vomiting from reflex action due to disease of some other organs—such as Bright's disease, diseases of the brain or nerves (hysteria).

Contents of vomited matter.

The vomited matter may consist of mucus, bile, blood, pus, vegetable organisms, or cancer cells, all of which are most important for diagnostic purposes when placed under the microscope. They point to catarrh, ulcer of the stomach, or ulceration, cancer, and sarcinæ. Patients who suffer from constant vomiting should at once seek medical advice, for a correct diagnosis is the only means of adopting proper treatment, and by so doing ulcer of the stomach, etc., is very often *nipped in the bud.*

Physicians diagnose the different kinds of vomiting by carefully noting the time of its occurrence and whether accompanied by pain, as follows:—

Ulcer of stomach.

Comes on soon after a meal and is accompanied by violent pain which ceases when stomach is emptied.

Cancer.

Same as Ulcer—the pain not usually so sharp. Other signs of cancer.

Brain disease.

Vomiting occurs quite independently of the taking of food. May come on suddenly. No pain.

Bright's disease.

Same as brain disease, but it is usually associated with diarrhœa.

Constriction or spasm of Œsophagus and upper orifice of the stomach (Cardiac orifice).

Food expelled immediately it is swallowed, without pain.

Chronic Catarrh of stomach.

Vomiting comes on two or three hours after a meal, without pain, but with a feeling of great pressure in the region of the stomach.

Dilatation of stomach and constriction of lower orifice of the stomach (pyloric orifice)

Occurs when digestion is at its height, and may occur in the night.

Alcoholic.

The sickness occurs in the morning on first rising, and may be produced by coughing.

Pregnancy.

Same as alcoholic, but there are other signs of pregnancy.

Vertigo * (giddiness).

We get this uncomfortable sensation in many kinds of indigestion. It comes on suddenly, perhaps when the sufferer is walking in the street; he feels giddy and as if he would fall, and catches hold of anything near to him. It usually only lasts a few minutes. The sufferer often feels as if the pavement was moving under him, or that he is treading on cotton wool. Vertigo is also a prominent symptom in a disease called Menière's disease, but we have always deafness in this disease, and the patient can produce it by coughing and blowing his nose, besides which there are other symptoms. We must also distinguish it from Epilepsy if the patient has a history of epilepsy and it occurs soon after a meal.

Vaso-motor disturbances.

The vaso-motor nervous system is an intricate meshwork of nerves which are situated all over the body, and consequently in different forms of indigestion abnormal sensations are produced. We may get a tingling in a limb or over a greater part of the body, a numbness as if there was some continued

* Trousseau named it "Vertigo à stomacho laesio."

pressure upon a nerve, a feeling of constriction round the body, and a kind of feeling as if one side of the mouth were stiff and drawn up, in which last case the patient frequently fears paralysis, particularly if in addition there is a difficulty in the articulation. Herschell has also described a feeling of constriction at the roof of the nose. "It is," he says, "a sensation as if the nose were compressed, and causes frequent involuntary sniffing by the sufferer, to try and remove the feeling of obstruction."

CHAPTER V.

THE DIFFERENT DISEASES WHICH ARE THE CAUSES OF INDIGESTION.

Atonic Dyspepsia.

THIS is simple dyspepsia caused by debility, in which very often the whole system partakes. It is either hereditary, or due to old age, sedentary occupation, smoking, depression of the spirits, disappointment, drinking alcohol or tea or coffee in excess, or anything which interferes with the healthy action of the stomach and intestines.

Symptoms.

Pain coming on in about half-an-hour after eating, and lasting until digestion is completed. It is of a dull, heavy character, like a weight felt in the chest or between the shoulders or more under the right side (liver). Sometimes it is of a burning sensation, which extends up the œsophagus (gullet). The patient

only gets rest when the stomach is empty. Eating, then, becomes a dread. Loss of appetite is always present, and food of most kinds is distasteful. Heartburn is generally experienced, as also is Pyrosis, or water-brash as it is called, *i.e.*, a tasteless fluid rising up into the mouth, which may be followed by sickness or vomiting. The tongue is pale, broad, flabby and clean, unless there is irritation, when it is white and furred.* There is also headache, giddiness, constipation, flatulence; the general system is affected, the pulse is weak and irregular, and there is a feeling of languor of body and mind. The countenance becomes pale and sallow, and there is a loss of weight. This state may last for years, or an inflammatory attack follows, and then you get the symptoms peculiar to congestion. Slow digestion and atonic dyspepsia are very amenable to treatment, and should consequently be properly dealt with before other serious symptoms set in.

* It can now be easily understood from the preceding chapter on Physiology, that the condition of the tongue as part of the digestive system is a great guide as to the condition of the stomach.

It is a warning from Nature that the sufferer cannot play with his stomach, but must exercise a judicious amount of care over it. The first and foremost object of the treatment must be, as I have already so often stated, to find out the cause, and attack it. If from a sedentary life take more exercise; if from excessive smoking, eating, or drinking, moderate your appetite. When, however, it is produced through old age or is hereditary, the only way is to pay attention to dietetic principles, and so give the stomach as much rest as possible, and help it by artificial digestion. (See further remarks in the chapter on Treatment.)

Nervous Dyspepsia.

Produced entirely through the nerves which supply the digestive system. This is generally owing to malnutrition, and is often considered by eminent physicians to be due to the elements of phosphorus and iron being withheld from the system. In this form of indigestion is shown the extraordinary power the mind (brain) has over the various organs of the body, particularly the digestive. As previously stated, I have now a young lady

under my care who has worried herself so much about a love affair that her stomach absolutely refuses to work at all, and it has required very careful treatment to prevent death from exhaustion. We also see this extraordinary power in hysterical and hypochondriacal men and women. Case 2. A.C.S. This gentleman consulted me for heart disease, but I came to the conclusion he was suffering from nervous dyspepsia. After three months' careful dieting, and with the aid of small doses of phosphorus and nux-vomica he got perfectly well and all unpleasant symptoms vanished. It is, therefore, well to bear in mind that people who are greatly worried, depressed, anxious, or mentally overworked should be most careful concerning the wants of their stomach, and their diet should consist only of that which requires little aid from the stomach, otherwise the dyspeptic symptoms will greatly aggravate the mental, and a very unhappy condition will be the consequence.

Pain.—This is peculiar. It is unlike the pain of atonic dyspepsia, being worse before Symptoms.

meals; the patient feels a gnawing empty feeling, as if food was urgently required, which is relieved for a time after eating, but when digestion does not go on it returns, and all the sensations of slow digestion are experienced. Patients suffering from this form of indigestion frequently eat too much, thinking that the food does them good. Vomiting may be present, with thirst, heartburn, flatulence, drowsiness, and headache. The appetite is depraved, sometimes too large, at other times absent. In this disease, food which is considered most indigestible (cheese for example) will frequently cause less pain than easily digested food, such as bread and milk. Among the most troublesome symptoms, which always makes the patient think himself worse than he really is, is the feeling of inertia, which causes him to be languid, depressed, low-spirited, and totally disinclined to exert himself. The symptoms pointing to the nervous origin of this particular form of indigestion we are now discussing, are anæsthesia, tenderness, cold feet, pins and needles, eruptions (causing redness of the nose and face and a

nettle-rash of the skin), fidgets, and neuralgias, principally of the mucous membranes, which produce a hypersecretion of the gastric juice, such secretion containing too large a quantity of acid, and not sufficient pepsin. This excess is belched up into the mouth (pyrosis), and prevents the food being digested by distending the stomach before the food has had time to digest.

The tongue is pale, broad, and tremulous when protruded, very red, sometimes covered with fur, although the clean variety is the most common in nervous dyspepsia.

Acute Gastric Catarrh * (acute inflammation of the mucous membrane).

A disease that generally comes on suddenly and can be traced to some direct cause—such as chemical poisons (arsenic and antimony), animal or vegetable irritants (decomposing animal or vegetable food), exposure to sudden cold or heat, excessive drinking and acute diseases, such as fevers.

Symptoms.

Loss of appetite, pain, nausea and retching, extreme thirst. Generally headache and vertigo. Prostration and lassitude. Tongue

* This disease must not be confounded with Peritonitis or Typhoid fever.

coated with a thick yellowish fur, but sometimes raw and red. Pain and tenderness on pressure over the region of the stomach.

Treatment. This must vary according to the symptoms which point out the cause of disease.

Chronic Gast. (inflammation of the mucous membrane) A disease under many names, and the most common form of dyspepsia, and one that requires time and patience to cure. The fault lies in the lining or mucous membrane of the stomach, and is caused by irritants, over-eating, drinking in excess, congestion of the lungs, heart disease. It can be easily understood that so delicate a structure as the mucous membrane easily becomes inflamed, and when continually irritated by the sufferer drinking raw spirits or hot tea this soon becomes the chronic state of it, and we then get a very considerable quantity of mucus in the stomach spaces, which prevents the food from being acted upon.

In children this mucus which coats the walls of the stomach interferes with absorption.

The congestion of the mucous membrane interferes with the secretion and alters the

composition of the gastric juice. When this condition has been going on for a long time the epithelium becomes destroyed, and the secreting tubes which are buried in the mucous membrane become shrunken and wasted.

Symptoms.

These are similar to those described in atonic dyspepsia, but in addition you get a very disordered state of the bowels, which are sometimes constipated and at other times the contrary. There is often a craving for food, although only a small quantity can be taken without a sense of oppression and vomiting. Tongue always furred in the middle, with sides and tip red. Breath has a disagreeable odour, and there may be vomiting in the morning, with a disgust for any kind of food (except drink) before noon. Weight and distension of the stomach, dry cough, flushing, headache, and sleeplessness are prominent symptoms. The congestion causes an abnormal secretion of mucus (phlegm), which is very annoying in the morning and produces vomiting. The urine is acid, of a very high colour and deficient in quantity.

Treatment. The treatment for chronic congestion,* unless it is due to heart disease or disease of the liver or intestines, is purely dietetic; drugs generally do harm, except, perhaps, a saline mixture.

Irritative Dyspepsia. Irritative dyspepsia, is due to an over-sensitive mucous membrane, and has many of the symptoms of chronic congestion. It is really a congestion, but this is slight, and the causes which produce it are widely different. Foods of a strong nature will produce it, or it may be sympathetic, or the result of some disease of the skin, tongue, lungs, liver, heart, or kidneys. Poisons in the blood, such as arsenic, mercury, phosphorus or lead, or the poisons of gout, rheumatism, † or consumption may cause it. Again this irritative disease may have no cause assigned to it, except constitutional. You find a similar irritative disease in other organs, such as the eyes,

* Patients should carefully note that if they allow chronic Gastritis to go on for very long, the muscular wall and the mucous membrane of the stomach undergo morbid changes.

† The poisons of gout or rheumatism circulating in the blood often cause irritative dyspepsia, when there is no external sign of the actual diseases themselves.

where strong light produces inflammation in debilitated constitutions.

The tongue is coated with a thick, whitish yellow fur, and the breath is foul. There is no tenderness or pain over the stomach. Slight discomfort after eating is experienced, but if anything is eaten of an indigestible nature the tongue soon gets coated, and there is a disagreeable taste in the mouth. There may be a dry, troublesome cough, and some irritation in the throat. Sickness and nausea are absent. Diarrhœa may be present, which produces loss of weight as the food is passed too quickly through the bowels. Symptoms.

I may here call the attention of the reader to the fact that it is not uncommon for this disease and the others I have described to be combined or complicated with other diseases; then the patient would suffer from symptoms peculiar to each. Complicated with other diseases.

The treatment of irritative dyspepsia, which as I have already explained, has to do with a foul tongue and bad breath, must be chiefly dietetic of a very bland kind, with plenty of outdoor exercise. (See chapter on General Treatment.) Treatment.

Dilatation of stomach.

This is a very frequent cause of indigestion, and I have found it in my practice to be a far more prevalent cause than it is generally considered in some of the principal text-books on medicine. The muscular walls of the stomach get gradually dilated through being constantly blown out with wind (gas, from fermenting food), and the stomach is unable to contract on the food, which consequently does not get sufficiently stirred up. The original cause is due to some affection of the pylorus (*i.e.*, the passage from the stomach to the intestines), so that food is impeded from passing. Dilatation goes on slowly and surely until the stomach comes to occupy a large portion of the abdominal cavity.

Symptoms.

Gastrodynia (stomach cramp), heartburn, water-brash, flatulence, constipation, vomiting of a large quantity of intensely acid fluid.*

The treatment of this disease must be dietetic. Very small quantities of easily digestive nutritious food, with little fluid should be taken. Sometimes the stomach will have

* This fluid is shown under the microscope to contain vegetable organisms, sarcinæ ventriculi and torculæ cerevisæ.

to be washed out once or twice a week. A pint of warm water should be slowly sipped in the morning two hours before breakfast, and should there be vegetable organisms, sulphide of sodium in two to five gr. doses must be taken. (See chapter on General Treatment.)

Gastric Ulcer.

Although going a little beyond the intention of this work, I think I must include Gastric Ulcer, from its being always associated with indigestion. It is far more frequent in women than in men, and more so in poor women who lead a sedentary life. It varies from a small ulcer the size of a threepenny piece to one as large as a five-shilling piece, and is situated in the mucous membrane of the stomach, generally on the posterior surface—that is, nearest the back. It is often fatal through hæmorrhage or perforation, which latter allows the contents of the stomach to get into the abdominal cavity.

Often fatal.

Symptoms.

Great pain over the region of the stomach and in the back; this is increased by warm, sweat food. Tenderness over the spot. Palpitation of the heart and aorta. Eructations

of sour fluid and vomiting, loss of flesh and spitting of blood (hæmatemesis). It is often associated with irregular and scanty menstruation. Perforation may happen after a full meal, then we get violent pain, tympanites, great anxiety, collapse and death.

Treatment. The variety of this disease is so great, extending from mere abrasion to a large inflamed ulcer, and the symptoms in consequence are so very different with regard to intensity that it would be absurd to give the treatment for this disease; even the leading text-books more often than not mislead the young practitioner. It would be the utmost folly for any sufferer to attempt to treat himself. The principal treatment I always rely upon, in severe cases, is absolute rest. In my pamphlet on "Gastric Ulcer: Cause, Pathology, Treatment, and Cure," I give particulars of a very severe case, which had defied the very skilful treatment of some eminent men, and which accompanied by absolute rest, I fed with nutrient enematas for six months, with the satisfactory result of a complete cure.

This is generally a symptom of indigestion, but may also be considered a disease. It means to be set on fire. Even loud-sounding names often convey a clear meaning, and people who suffer from water-brash or pyrosis will readily recognize the feeling, viz., that they feel as if "set on fire." There is frequent eructation of a thin watery and acid fluid. It is common in women, either in advanced life or with some disease of the nervous or uterine system. Pyrosis.

Pain at pit of stomach, followed by eructation of watery acid fluid; sometimes nausea and vomiting. Symptoms.

Treatment must entirely depend upon the cause. Treatment.

Inflammation of mucous follicles of the mouth. This may produce indigestion, through the food not being properly masticated, or through the saliva being deficient in quantity or quality. It is more often a disease of childhood. Stomatitis.

Loss of appetite, diarrhœa, restlessness, and a constant flow of saliva. The submaxillary glands become tender and tumefied, and the mouth is covered with small vesicles. Symptoms

Treatment. Application of a lotion composed of borax and glycerine, with tonics, and change of air. (See chapter on General Treatment.)

Œsophageal stricture. Stricture of the gullet, coming on spasmodically, may be organic or functional. It causes interference with the digestion through the food not being able to reach the stomach properly.

Organic. Generally the result of an attempt to swallow some corrosive poison.

Symptoms. Vomiting, pain, loss of weight, dysphagia, difficulty in swallowing, and other symptoms, due to the food not being able to pass.

Treatment This is a very serious complaint, and the only treatment consists in dilating with bougies, and careful dietetic treatment.

Functional. An involuntary contraction of the muscular fibres of the œsophagus, which may be best compared to that spasmodic contraction of the bronchial tubes known as asthma.

Symptoms. Difficulty in swallowing, sense of fulness, choking, languor, anæmia, and various other symptoms of a hysterical nature. It can be easily distinguished from the organic form, as it is only temporary, and a bougie can be easily passed.

As this is purely a spasmodic complaint the best treatment is valerianate of quinine, with galvanism, and attention to the general health. Treatment.

Those who have paid attention to the chapter on Physiology will understand that any diseases of the mucous membrane of the tract would give rise to indigestion. Intestinal Disease.

Pain just below the pit of the stomach, coming on after digestion in the stomach is concluded (4 to 6 hours). Diarrhœa, tenderness, severe flatulence, which last is produced by the food being detained too long on account of the sluggish action of the bowels, and the intestinal juices not having their proper power of preventing fermentation. In intestinal indigestion you find large quantities of fat and starch in the stool. Symptoms.

Treatment must be dietetic, and there should be abstention for some time from starchy and fatty food; if severe, pancreatic emulsion can be given. Treatment.

Constipation is one of the most frequent causes of indigestion, and indigestion is a frequent cause of constipation. The whole fault lies in the muscular fibres and the mucous Constipation.

membrane of the intestines; the muscular walls have lost their tonicity, and the peristaltic (wormlike) action does not force the contents of the bowels through regularly. (We term this "sluggish action.") Everyone should have their bowels moved once in twenty-four hours; although people who eat little do not go oftener than three times a week, and in their case this may be consistent with good health. It is of the utmost importance for anyone with slow or atonic dyspepsia to carefully regulate their bowels.

Causes. Constipation is occasioned as stated above and is also due to the functions of the stomach, liver and pancreas being imperfectly performed, or to mental and bodily depression.

Symptoms. Sallow and pasty complexion, foul breath, irritable and dry skin, headache and flatulence; the disposition is often morose, and the temper irritable. The mind and body seem disinclined to study or work. Complete inertia.

Bad complexions in young girls. Constipation is the chief cause of bad and unhealthy complexions in young girls. *

* I have given more time to the study of this complaint, since the first edition of "Indigestion" was published, and have come to

It is foolish to give any general treatment for constipation without knowing the cause. This must be carefully studied and worked out before suitable remedies can be prescribed. Very often the bowels themselves require no treatment, but some other organ, and as soon as it is set in working order the bowels at once follow suit.* Treatment.

This is the opposite condition to constipation and frequently accompanies indigestion. It is produced by excessive irritability of the muscular walls of the stomach and intestines associated with weak digestion, or by some irritating article of diet, such as oatmeal, brown bread, etc., or by an inflamed and Diarrhœa.

the conclusion that more ill-health is occasioned by constipation than many physicians are aware of. I believe that the absorption of foul gases derived from decomposing fæces if not actually producing typhoid fever produces symptoms of so similar a character that they are most difficult to separate. I am also convinced that some of the worst cases of headache and sleeplessness are due to this cause.

* A short time ago I had a patient who suffered severely from indigestion and constipation; she had been under treatment for three years previously to consulting me, and seemed to have swallowed half the drugs in the pharmacopœia. She was entirely cured by the simple process of injecting half-a-pint of warm water daily.

catarrhal condition of the lining membrane of the stomach and intestinal tract.

Treatment. The treatment as in constipation must entirely depend on the cause; if arising from an inflamed and catarrhal condition of the lining membrane the blandest diet must be taken for some time.

Congestion of liver.—Acute. As has been already stated, congestion of the liver is one of the most prevalent causes of indigestion, and a very common disease among all classes of people. The liver is a most kind and useful friend when healthy, but a very unpleasant one when it gets out of order, at which time it soon makes its existence known. How I envy those most fortunate beings who tell you they do not know they have a liver! Such, however, should be the natural feeling. The liver and stomach seem very much interwoven, and one does not appear to get out of order without the other suffering. From the chapter on Physiology, the uses of the liver and bile have been thoroughly explained, therefore it can be easily seen why the liver on becoming congested brings on

Stomach and liver interwoven.

indigestion and injures the complexion and general health.

Liver increased in size; a little tender. There is pain or weight in the right side and shoulder, slight jaundice, headache, nausea or vomiting, the tongue is foul, there is loss of appetite, and the bowels are confined. Symptoms.

The same symptoms as the acute, but they are generally less severe. Chronic.

This affection is often the result of disease of the heart, but it may be also produced by blows on the side, ague, piles, the abuse of alcoholic stimulants, want of exercise, etc. Causes.

The treatment must be, first, to reduce the congestion by drugs which act on the organ, and afterwards there should follow a dietetic treatment with plenty of physical exercise. In some cases electricity is of great service. (See General Treatment.) Treatment.

Although piles are seldom dangerous to life they are of some importance by reason of their frequency and the pain and annoyance they cause to life and temper.

Medically we divide them into arterial, venous, and capillary; they are in each case

a dilatation of those vessels which exist so plentifully in the lower part of the bowels called the rectum. When I compare them with a similar condition of the veins in the legs, known as varicose veins, I think every reader will understand what is meant by "piles."

The liver has much to do with this condition, for when congested it prevents the blood returning from the veins in the rectum and thus causes dilatation; while on the other hand the liver is sure to suffer when these veins are inflamed and painful. Hence it is that patients suffering from indigestion and congestion of the liver are nearly sure to have piles, and their condition is made worse when the piles are neglected. Physicians who devote their time to the treatment of diseases of the stomach are certain to have a large number of these cases to deal with.

The causes of piles are a chill to any part of the body, sitting in cold damp water-closets,* local congestion, excessive straining

* The water-closet is, as a rule, destitute of every comfort. People often go into the cold damp place (perhaps when just convalescent) and stay in it for nearly a quarter of an hour, with

due to constipation or diarrhœa, leading too sedentary a life and sitting on soft cushioned chairs. Some people are more predisposed to piles than others by reason of their veins in the rectum being more easily dilated; these are people of a gouty diathesis. This class often suffer dreadfully after a few glasses of champagne or port wine.

Treatment.

We may consider the treatment to consist in keeping the liver in such a condition as to maintain a free supply of blood through it, and the bowels regular, avoiding chills, taking plenty of exercise, observing strict rules of dietary, keeping the parts scrupulously clean, and never using anything but soft unprinted paper.

When they are in an inflamed condition, prompt medical treatment should be obtained. Perhaps even the surgeon's aid will be required in chronic cases.

Worms.

These are very frequently a cause of indigestion, and give rise to similar symptoms. In the human intestines are sometimes found

a considerable portion of their body exposed, when they would never dream of going outside without extra clothing. I am sure that old people frequently catch their death-chill in this place.

Tœnia solium (the common tape-worm), Ascarides (round worms), and white thread-worms. It is quite unnatural for intestines to contain these, and they should be at once got rid of; the most effectual drugs being male fern, santonin, turpentine and quassia. After having expelled them, strict attention should be paid to the diet for some time.

Case 3. Miss H. consulted me for indigestion last February, having failed to obtain relief after having taken medicine of all kinds. I diagnosed the cause to be a tape-worm. A few days afterwards, with the aid of male fern she expelled a tape-worm 40 feet long, when immediately her digestion improved.

Gout.* Gout is doubtless hereditary, but it certainly can be brought on by leading too sedentary a life, or overloading the stomach for years with food in excess of that which

* Sir William Roberts (Croonian Lectures, 1892) maintains the view that uric acid is not in itself a poisonous substance, and that when in solution it exerts no deleterious action upon the tissues. The deleterious effects which undoubtedly result from its presence in excess in the blood are, he maintains, of mechanical origin and result from its deposition in the form of the insoluble biurate of sodium. This opinion is quite the opposite to Dr Garrod, Ebstein, etc.

is required for the wear and tear of the body, and, in addition, drinking large quantities of malt liquors and sweet wines. The surplus gives the organs more work to do than they can manage, and is, therefore, not carried away, but converted into uric acid and urea.* The uric acid, when mixed with the blood, seems to cause an inflammation of the mucous and synovial membranes (in the joints) all over the body, with the consequence that pain and irritative dyspepsia are produced long before a fit of gout comes on.† I have found

* The uric acid can be obtained from the serum of a blister, if it is present in the blood.

Dr. Samson ascertained the quantity of uric acid in 1000 grains of morning urine in health and disease to be as follows:—

	Grains.
Health	·250
Acute Gout	850
Chronic Gout	·120
Acute Rheumatism	·802.

The case of the diminution in Chronic Gout is, according to Dr. Garrod, "The kidneys lose to some extent their power of excreting uric acid, although they eliminate urea as in health." Uric acid is always present in the blood of gouty people. A large proportion of the uric acid resulting from disintegration of albuminous substances taken as food, combines with ammonia, soda, or lime, forming urate of ammonia etc., etc., which is excreted in health in the urine.

† A. G. writes: "I wish I had followed your opinion a year

of late years that gout is more frequently the cause of indigestion than I formerly suspected.

Part affected.

Gout chiefly attacks the smaller joints; it may be an acute or chronic affection. In the acute form the fever is less, but the pain is as severe as in rheumatism. Usually only one or two joints are affected at a time, and the inflammation is succeeded by œdema, and desquamation of the skin takes place. The attack in the joints is usually preceded a few days before by listlessness, languor, want of appetite, acidity after meals, flatulence, and constipation. The seizure generally takes place at night, and at first is limited to the ball of the great toe. Actual seizure seldom takes place before the age of thirty. Gout must be looked upon as a deadly enemy as soon as it makes its appearance, and living by rule is by far the best means of attacking and preventing it. Medicine is not required, save when the fit is on,

Time and locality of seizure.

Gout a deadly enemy.

ago. You said I had gout, and told me to consult Dr. Garrod or Dr. Mortimer Granville if I wanted your diagnosis confirmed. I know I have it now. I have filled up all your questions; please send me a diet-card, and let me know when I can see you."

except perhaps a little lithia salts taken daily. (See chapter on General Treatment.)

Obesity is certainly a disease, and should not be looked upon as a healthy sign. When a man or woman is more than 7lbs. above their proper weight, according to their height, † the extra amount of flesh does harm, and it gradually increases. When a person gets corpulent he generally gets lazy and apathetic; the consequence is that more fat is deposited,

Weight should be in proportion to height.

Results.

* I have found Johannis water, which is a natural mineral water and very favourably reported on by the "Lancet Analytical Commission," a most excellent, suitable water to be taken in cases of gout and obesity.

† Table showing the relative height and weight of an adult in proper health:—

Man.				Woman.			
Stature.		Weight		Stature		Weight	
ft.	in	st.	lbs.	ft.	in.	st.	lbs.
5	1	8	7	4	10	7	0.
5	2	9	0	4	11	7	4
5	3	9	7	5	0	7	7
5	4	9	13	5	1	7	12
5	5	10	2	5	2	8	2
5	6	10	5	5	3	8	9
5	7	10	8	5	4	9	2
5	8	11	1	5	5	9	9
5	9	11	8	5	6	9	13
5	10	12	1	5	7	10	8
5	11	12	6	5	8	11	4
6	0	12	10				

and the muscles begin to degenerate for want of exercise, until at last he cannot take any exercise, his muscles not being able to stand the fatigue. Then all kinds of diseases set in—indigestion, constipation, congestion of the lungs and liver, fatty degeneration of the heart, renal troubles, gout, piles, varicose veins and difficulty in breathing, besides minor symptoms, such as giddiness, headache, flatulence, a flushed face and profuse sweating.

Diseases produced.

Constitutional classification.

If we classify people according to their constitutional type we find the nervous and scrofulous seldom suffer from extra fat, while the gouty, bilious and lymphatic generally do after middle life. The dietetic treatment of each would be very different, although the result in all cases would be the same, viz., decided benefit to health and promotion of longevity.

Present and future.

People are far too fond of thinking of the present and not of the future. If a person suffers from indigestion at twenty, he ought

* Germans are proverbially fat. Frenchmen generally so about the abdomen. English take a medium position. Scotch and Irish are thin.

to consider how much more he will suffer at fifty (if he lives) unless a cure is effected; so, in like manner, if a person is too fat at thirty, what condition will he be in at sixty to battle with disease, unless he keep his fat down?

Excessive corpulency must be looked upon as a disease and treated as such, it plainly points out more carbo-hydrates are consumed in the form of sugar, starch and fat than nature knows what to do with, so she deposits them in the form of adipose tissue. Fat is of great use in the composition of the body, and should form 18 per cent. of the adult human body, part of which is always kept in reserve to be of use when disease takes hold of it or it is starved, people for this reason who are very thin and have no reserve adipose tissue often succumb sooner to a wasting disease. To be too thin is every whit as bad as being too fat. Adipose tissue varies in quantity, it fluctuates, through the quantity supplied by food or burnt away by excessive muscular exercise or fatigue. We require therefore a large quantity of fats and carbo-

Corpulency, general remarks.

General remarks continued.

hydrates in all wasting diseases, in cold climates, and when a large amount of physical exercise is undergone; and a diminished supply where there is a tendency to obesity and sedentary life. Although the treatment appears simple enough, people do not seem to be very successful when treating themselves; the fact is without a hard and fast rule is laid down in the shape of a diet card drawn up by a practical dietetician, they do not follow the minutiæ of the treatment whereby alone success is achieved, and the cause of the obesity attacked. For example:—a person whose corpulency is due to gout, indigestion or constipation must be dieted quite differently than when due to leading a sedentary life or want of sufficient physical exercise. Speaking generally, a person should lose 10 lbs. a month under a strict dietetic treatment, which will not only prevent the deposit of fat and consume the excess already deposited, but will at the same time strengthen the whole muscular system, brace up the digestive system and make a new being of him.*

* The athlete, race-horse and greyhound when in prime con-

In the chapter on physiology I have pointed out that digestion consists in the conversion of non-diffusible proteids and starch into diffusible peptones and sugar, and in the emulsifying of fat by its division into minute particles which are afterwards acted upon by the pancreas. Corpulency therefore is often caused through some defect in the digestive system, whereby the fat instead of being properly assimilated and consumed in the general wear and tear of the body, is deposited, with the following consequences:—it chokes up all the organs of the body, producing fatty infiltration, and perhaps fatty degeneration (although the latter is generally a separate disease and brought on through general debility due to some wasting disease), also produces gout and indigestion in the manner I will explain.

dition have very little surplus adipose tissue on their bodies, but the full amount of muscular tissue. This state is brought about by plenty of physical exercise, a large quantity of nitrogenous food with little non-nitrogenous. The corpulent should do likewise, except the change must be gradual. The intelligent groom gradually substitutes corn for grass after bringing a race-horse from grass, and very soon makes a fat, lazy animal into a sleek, strong, active, muscular creature.

Indigestion and Obesity.

No one can have more to do with obesity than a physician who studies indigestion, for obesity causes indigestion, and indigestion will cause obesity. In the first case obesity prevents physical exercise, brings on congestion and gout, creates flatulence, and, therefore, deranges the digestive system; and in the second case indigestion creates a languid and apathetic condition and the patient does not have any inclination for exercise; it causes sleep and constipation, and prevents the effete matter being carried out of the system, such matter being in consequence deposited as fat. In men this disease (for it is a disease) commonly begins to develop between the ages of forty and fifty, in women a few years earlier.

Causes.

The causes of obesity are eating too much carbonized foods, such as starch, sugar, and other farinaceous foods, and drinking an excess of malt-liquor, or taking too much of these foods without taking sufficient exercise to burn the fat away. There is a certain amount of fat burnt away daily in the wear and tear of the body, particularly in those who take

violent physical exercise. (An athlete in perfect condition should not have four ounces of fat on his whole body.) That which is not required is stored away as fat (reserved fuel). Considering the diseases, inconvenience and the disfigurement which are produced by corpulency, it is a great wonder why doctors have not taken more trouble in the treatment of this complaint. When treated as I have before said and on scientific principles, it is easily reduced by simple dietetic treatment, without medicine. Of course, patients must agree to put themselves to a little inconvenience, and carefully follow a prescribed diet. I do not remember ever failing with a case in which my treatment was regularly followed.*

Inconvenience and disfigurement.

The great object in the treatment is to allow a little sufficient food and of a suitable

Treatment.

* I reduced myself from 14 st. to 12 st. 2 lbs. in eight weeks, without the slightest inconvenience, purely on dietetic treatment, and I felt much better, and able to do considerably more work than before. This over-weight, I may mention, was produced by a long sea-voyage, which has this effect on most people who are not greatly troubled with mal-de-mer. On board ship people eat too much for the amount of exercise that is taken.

kind to satisfy the cravings of nature, but at the same time to add no carbonaceous food, and to get that which already exists in the form of fat used up.

To increase the action of the skin and kidneys and so free the blood of morbid materials and thereby maintaining the blood in a normal and healthy composition.

By exercise and extra nourishment to strengthen the muscular tissues and keep them firm in fibre and tone.

The treatment for the cure of corpulency is not elaborate, but simple, and people need have no doubt of being reduced to their proper weight if they only will carry out the treatment regularly for about twelve weeks. No medicine is required unless the obesity is complicated with other diseases.

Advertised nostrums.

All medicines which are advertised for reducing fat only do so at the expense of the patient's strength; what is wanted is to burn away the fat which is deposited, and for the future not to take any food likely to produce more, but only such food as will increase the muscular system. In this manner

weight can be easily reduced from three to four pounds a week. *

While dealing with the subject of diseases causing indigestion, I think it desirable to impress upon my readers the great importance of a chemical examination of the urine, from which is obtained reliable information as to the condition of the digestive organs. † By such examination the physician acquires a full knowledge of

Importance of chemical examination of the urine.

(*a*) Albumen, presence of,
(*b*) Sugar, ,, ,,
(*c*) The acidity,
(*d*) Amount of chlorides, phosphates, etc.,
(*e*) Quantity of urea,

* A lady who was 57 years of age, height 5 ft. 4½ in., weight 13 st. 2 lbs., consulted me for indigestion which she thought was due to her being so fat, for she had never suffered when able to take exercise; she also complained of getting tired and faint when she forced herself to take walking exercise. I treated her dietetically with the most pleasing results, for in three months her weight was reduced to 10 st. 10 lbs., all her indigestion had disappeared and she said she felt ten years younger.

† Chemical examinations of the contents of the stomach for hydrochloric acid, lactic acid, pepsin, milk-curdling ferments, proteids and starch are sometimes of service to the physician, although for my own part I have seldom derived much benefit from them. It would be quite beyond the scope of this work to describe the various tests.

and is thus enabled to form an accurate diagnosis of the state of digestion, and also if the poisons of gout or rheumatism are present in the blood. The presence of a substance called Indican in abnormal amounts shows that abundant albuminous decomposition is going on in some part of the digestive system.

CHAPTER VI.

GENERAL TREATMENT.

This, in all medical works, is the most important part of the book to the sufferer. He does not care so much about an elaborate and scientific description of the cause and progress of his disease as its absolute cure or alleviation. Some doctors possessing far more scientific knowledge than good sense will often explain before a patient all the minute points in the pathology of the disease, make an elaborate diagnosis, and when the poor patient naturally asks what good they can do in the way of treatment, they callously reply—None!

Necessity of understanding rationale of treatment

I think I have explained pretty clearly in the previous chapters the reason why it is absolutely necessary for the patient to under-

stand the rationale of treatment, and to make himself well versed in the causes of the disease and the outlines of the physiology of digestion; then the means prescribed will become perfectly clear. I feel perfectly convinced that anyone who reads this work carefully will see how utterly absurd it is for people to have any faith in quack medicines, professing to cure every and any kind of indigestion, and will alone seek the advice of [illegible] who have carefully studied the subject, theoretically and practically. I myself have adopted a system for some time which has worked so admirably that I am able to treat patients at a distance,* as well as those who personally consult me. It is embodied in a series of questions, which the patient fills up at leisure, and returns to me. On reading the replies to these questions I am able to prescribe a diet card. I have to thank one of the most eminent physicians in London for this suggestion, which he has adopted for

* I always prefer to have a personal interview with my patient, but during the last ten years I have treated patients in various parts of the world by correspondence and through their medical adviser with very gratifying results.

some years. I have found that people will often attend most carefully to what is written, when they will not do so if verbally informed; in fact they forget all about it. The best way to attack indigestion is to judge by the intensity of the symptoms,* and should these be mild and point only to a fit of dyspepsia, then simple means will be sufficient. For example, the following treatment will often be successful:—Take a pill composed of podophyllin, euonymin and extractum taraxaci at night and a purging dose of saline water in the morning, and follow a bland diet for a few days:—such as clear soup 6 oz., white fish 6 oz., with cooked vegetables; or clear soup 6 oz., poultry 4 oz., with stewed fruit and custard for lunch and dinner; for breakfast a new-laid egg, toast and tea. A small quantity of whisky or claret well diluted with water or Johannis water may be taken with meals.

Milk Diet.

Sometimes, if the digestive organs are

* The expression "intensity of the symptoms" should be carefully digested, for it is by carefully observing it that the various forms of dyspepsia are recognized.

thoroughly deranged by some great error in food, they will require complete rest, then a milk diet as follows should be substituted:—

Half-a-pint of new milk, boiled with 6 oz. of bread, to be taken three times a day, and twenty drops of raw meat juice in a wineglassful of cold water. Should this treatment not be sufficient, then there must be disease of some of the organs of digestion, and the only way to treat the disease is to get at the cause; but as there are (particularly in town) such a large number of people who suffer from indigestion from one cause and another, it is well to point out that people, knowing this, should be careful to diet themselves before the disease comes on, or if, unluckily, it overtakes them, then to diet themselves for some time after it has been cured. As pointed out in the introductory chapter, I treat most cases by dietetics, hygiene and physical exercise, all of which are splendid preventatives, as well as curatives of the various diseases. With medicine I have little to do, for in the majority of cases it is not necessary. I would rather produce pepsin, or pancreatin

If treatment insufficient.

Treatment by dietetics, hygiene and exercise.

through the pancreas and stomach by rest, etc., than by introducing it (from the stomach and the pancreas of the pig) into the stomach of the human being. I have seen patients, and most physicians have seen the same, who have had their digestive organs almost destroyed by trusting to artificial digestion.*

Drugs not useless.

My readers must clearly understand that I do not wish to imply that drugs are useless; far from it, for when administered judiciously they are most beneficial, and with such drugs as bismuth, bicarbonate of soda, nepenthe, ammonia, pepsin, pancreatin, papain, nuclein, acids, strychnine, rhubarb, magnesia, peppermint and ginger we can often alleviate certain symptoms, and thereby effect a cure but if these symptoms are so slight that they can be cured without drugs—why use them? Again, podophyllin,† euonymin, and mercury have all a powerful effect on the liver, and

* The Pepsin of the wholesale druggist has been proved of late to contain but 1 gr. in 500. Such a proportion is absolutely useless to aid digestion.

† It is a singular fact that podophyllin acts on some people like a charm, while mercury does the same with others, while a third class cannot take either podophyllin or mercury.

should that organ be congested or sluggish, a pill, composed of one of the above drugs, may set the organ in motion, and thereby disperse all the dyspeptic symptoms. On the whole, the dietetic system of treating indigestion seems the wisest. This system gives rest, and rest will cure nearly every disease, it is *Nature's cure*, and the way she treats diseases among the brute creation. It is useless to try and force the stomach, when it is exhausted or diseased to digest food, therefore a starvation diet is often the proper treatment. I once, after returning from the tropics, was attacked with congestion of the liver and stomach, and finding simple remedies and drugs of no avail I put myself on a very light dietary and plenty of exercise, and in a few weeks regained my usual health.

Nature's cure

Meal time for various callings.

I think that for the professional and business man a good breakfast, light lunch, and full dinner is the best way to regulate the meals: for the farmer and those who do much physical work the *Provincial System*, viz., a substantial breakfast at 8 a.m., a

dinner at 1 to 2 p.m., a light tea at 5 p.m. and supper 8 to 9 p.m. is very suitable. For the *gentleman* without work I commend the French, or two-meal system, with coffee or tea and roll and butter served in the early morning.

Concentrated food.

We are certainly more blessed than our forefathers in the way of being able to get foods *multum in parvo*, for which we have to thank the science of chemistry; but we should not unduly exult over it, for perhaps our forefathers' digestions were much more robust than ours, and did not want such concentrated food. The greatest success has been in the manufacturing of beef juices; and the most perfect of these, are the raw meat-juices made by the cold process where the very best of beef is sold at such a reasonable price that the manufacturers are able to make a genuine article, and sell it at a very moderate price. I have taken some trouble about the preparation, and in order to thoroughly satisfy myself I asked a large manufacturer in America, if I might read the original testimonials that he had received, and with true American politeness their ma-

nager waited upon me with these testimonials, and even sent to America for further original testimonials to show me. From these I found that very eminent members of the profession (in both countries) have the same opinion as myself, that raw meat-juice made by the cold process is most useful in all chronic diseases of the stomach and cases of mal-nutrition and mal-assimilation. I, instead of taking a few raisins to relieve my hunger (when at work) as the late Sir William Gull used to do, take some raw meat-juice and find it much more sustaining. Messrs. Savory and Moore have also produced a very valuable food in "Peptonized Milk and Cocoa," which can be taken temporarily until the stomach recovers itself. I need hardly mention the number of patent foods, all more or less reliable and useful. I find it often a very good plan to allow patients to eat their usual breakfast and dinner, but advise them to partake of some patent food in the middle of the day. I must not forget to say a few words on milk, which I consider a most valuable food. Unfortunately, the great drawback to drinking milk, except when it is properly

Relief of hunger.

A good plan.

Milk as a food.

boiled, is the danger of infection.* There is no proper inspection of milk; it may come from diseased cows, contain all manner of impurities from dirty, ill-ventilated sheds, the hands of the milkmaid, and the water it is mixed with, and the cans it is conveyed in may be washed out with water which may be nothing more nor less than filtered sewage. There may also be the same danger of infection from water unless boiled and filtered. Among the most useful beverages for dyspeptics are sound red wines diluted, whisky well diluted, beer and tea, about all of which I shall have something to say in the chapter on "Foods," and for the present will merely remark that I do not think tea, beer or spirits are, in some cases, at all harmful to people suffering from the pangs of indigestion, but, on the contrary, even beneficial.

Useful beverages for dyspeptics.

Only of late years has the therapeutical effect of hygiene, physical exercise, cold water, massage and electricity been scientifically studied and applied to various diseases. Indi-

New therapeutics.

* I have clearly shown this in a pamphlet on "Milk and Consumption," and I believe my remarks are not exaggerated.

gestion has received the maximum advantages from these new therapeutics. I have explained elsewhere how very necessary "hygiene" is to digestion, and if the air is deficient in oxygen, or polluted, how it affects the digestive system. Physical exercise is also most necessary and beneficial, for this alone, sometimes, will cure indigestion. There cannot be a doubt that nature herself intended mankind to take a certain amount of exercise daily, so that the muscles in every part of the body might undergo natural wear and tear and increase in vigour. And the muscles of the chest and abdominal walls partaking of this good, the natural result thereof is that they help and assist the stomach and bowels in the progress of digestion and prevent constipation. When there is a healthy wear and tear of the body going on, it acts as a very powerful stimulus to the whole digestive system. Riding, dumb-bells, rowing and other exercises all have their special advantages, but none come up to walking for real benefit.

Nature intended exercise to be taken

People who suffer from any form of indi-

The skin

gestion generally have a weak or defective circulation of blood (which supplies the skin) with the consequence that they suffer from a dry, harsh skin and from various eruptions. It is therefore necessary to keep the skin in a healthy condition by water, daily rubbing, and wearing suitable clothing to withstand changes of temperature and our erratic climate. Woven woollen materials are doubtless the best for those people whose skin is able to stand the irritation.

Cold water, in the shape of baths and sponging the body over daily, also acts beneficially by increasing the tone of the muscular system all over the body; it often produces appetite, and when combined with exercise is most valuable. Some people are unable to stand the shock of a cold bath; in that case tepid water should be used.

I have for the last two years used massage and electricity, either separately or combined, as a means of curing indigestion, and particularly constipation in women. I have been most successful in the cases I have treated. The treatment does most good

in cases where the indigestion is due to debility and want of tone of the whole system. The massage should be applied to the stomach and bowels by a well-educated *masseuse*, and should be continued for some weeks. The
Electricity. electricity may be applied direct to the stomach, or generally to the whole system, as the case may require.

Electricity. Physicians who have devoted much time to the cure of *Indigestion* cannot but be surprised at the amount of good this does when applied by the medical man himself or by an intelligent patient, after being carefully instructed by practical lessons, on himself. We apply local faradization, general faradization and central galvanization, and from this treatment we often get increase of appetite, loss of flatulence improvement in the regularity of the bowels, with sleeplessness becoming a thing of the past.

A bad case. I had last April a most intractable case of indigestion; the symptoms were so bad that *ulcer* or *cancer* was suspected. The patient could not take even milk without pain and vomiting. I subjected her to a long

course of massage and electricity, which was followed up by tepid baths and daily bodily exercise. In three months a dejected-looking skeleton was transformed into a plump, good-looking girl.

Text-Book system not adopted.

I trust the reader will clearly understand why I have not adopted the usual system of text books, and given an outline of treatment after each disease, and will agree with me that every case must be treated on its merits, and no definite line of treatment can be prescribed,* as the accidents of *age*, *sex*, *temperament*, *and idiosyncrasy* must be duly taken into consideration. I, however, sincerely hope that the reader will find in this chapter on general treatment some useful hints applicable to his particular case.

Patients treating themselves.

I must impress upon the non-professional reader that although I consider this a most useful work to have by them, whether suffering from indigestion or not, I do not for *one*

* For example, A., B. and C. may suffer from atonic dyspepsia; the treatment prescribed for A. may not suit B., and that for C. neither A. nor B., the causes of dyspepsia in each of the three cases, being quite different.

moment suggest that they should treat themselves by it, except in *slight cases* or when medical aid is not at hand. To make my meaning as clear as possible I will give two practical illustrations. I am exceedingly fond of electricity and buy and study a number of books which treat on that subject, but if I had the electric light in my house and anything went wrong with it, I should at once send for a practical electrician; not *doctor* it myself, unless I could not get one, or there was only a simple defect to be dealt with. Again, I am fond of reading everything concerning the steam engine, especially as motor power for trains, ships, etc., but I should be the very last person to interfere with that wonderful mechanism, an engine, if skilled practical hands could anywhere be obtained.

A reason. One great reason for my writing this work is that I consider it is so much easier to treat a patient who has some slight knowledge of the disease he is suffering from than one who has not; for example, I should have no difficulty in explaining to people who have read this work and who consult me for indigestion

or obesity why they should take a certain diet for its cure.

There can be no doubt of the fact that, as regards the greater number of people, they are dissatisfied with an All-Wise Providence. We know the body is liable to disease, but far be it for me to question why our earthly body is so attacked. The majority of people think that because Providence has ordained that we should suffer disease He also should have provided a remedy. The remedies that in His goodness He has provided and placed in the hands of the physician are not sufficient for them; they think they should have remedies which could be labelled A. B. C., etc., A. would cure Influenza, B. Sea-sickness, C. Gout, D. Indigestion, E. Rheumatism, F. Consumption, and so on. Such an arrangement, I own, would be a very pleasant and easy way of getting rid of our ailments, but here is the fallacy of the general public—they think that there are certain specifics which cure various diseases. This, unfortunately, is not so, and they are most grievously mistaken in so imagining.

dissatisfied with medical science.

We have no specifics, unless Quinine can be called one, for ague.

Pseudo Medical branch

There is a so-called branch of the medical profession which issues little books with an alphabetical list of diseases and opposite to each disease the specific for the same. This in every case is a few drops of some very strong tincture in water. I, personally, would at once give up the profession, if I thought such a method had any virtue in it, for I should think I was only imposing upon a credulous public. Doctors *alone* can treat disease better than any amateur doctor, because they have studied disease practically and scientifically, as in like manner the engineer, electrician and watchmaker have studied their respective callings and can treat breakages, breakdowns or defective movements much better than any amateur engineer, electrician, or watchmaker could do.

The reason doctors alone can cure disease

CHAPTER VII.

FOODS.*

A PROPER recognition of the value of food might almost bring to pass a revolution in the habits of the community at large by maintaining a high standard of health, a cheerful temper, prevalent good nature and improved moral tone.

We should not have known much about the subject of digestion had it not been for the unfortunate (though fortunate for the world) wound of Alexis St. Martin, who had part of his stomach shot away, and which never really healing, the food could be easily taken out through the fissure at any period of digestion. There can be no doubt that Alexis St. Martin

Alexis St Martin

* People who take an interest in dietetics should read the author's work on "Food and Drink Rationally Discussed," a practical treatise on general dieting.

must have had a very healthy and strong digestion, so some of the times given for the digestion of certain foods must necessarily apply only to those who do not suffer from any defects of their digestive organs, and must, I think, be taken as the quickest times for such foods to digest. I can certainly say that this is true with regard to my own digestion. St. Martin was certainly a public benefactor by hiring himself out to certain eminent doctors to be experimented upon. Before this time we knew little or nothing about digestion. Dr. Beaumont performed, for the benefit of mankind, all kinds of experiments on Alexis.* He introduced bags into the empty stomach, in which he was able to collect an immense quantity of gastric juice, which was at once secreted by the stomach. He also irritated the stomach, and caused an erythematous or spotted appearance of the lining membrane, which gave rise to a feeling of weight and distress at the breast.

Dr. Beaumont's experiments.

* M. Blondlot, and subsequently M. Bernard, followed up these experiments by making fistulous openings into the stomach of dogs.

bone, giddiness, headache, and stiffness across the chest, and so rendered the diagnosis of the symptoms of irritative indigestion easy. He gave Alexis heavy meals, mixed meals, vegetable meals, and food of every kind, and at certain periods abstracted a portion of it from the stomach, and so examined the process of digestion.

Temperature of stomach.

Dr. Beaumont found, by placing a thermometer in the stomach, that no rise of temperature took place during the most active secretion of the gastric juice. It stood at 100° Fahr., the normal temperature.

Definition of *food*.

Food is any substance which, taken into the system by the alimentary canal, becomes subservient to either or both of the following purposes, viz., first, the nutrition of the *tissue* and the supply of materials for the various secretions, and, secondly, the production of heat and the maintenance of the vital force, and thus sustains that composite structure, the human body, under the varied conditions in which it may be placed.

It consists of *organic substances*, that is, substances derived from that which is living, or has had life, and contains several proxi-

mate organic principles, chemical compounds, water, and saline matter. Pure chemical proximate principles, *i.e.*, nitrogenous or non-nitrogenous substances, have been considered of late years to be incapable, when taken separately, of maintaining life. *

Division of foods.

The various articles of food may be divided into (1) nutritive, those that contain nitrogen in excess, which nourishes the body, and (2) calefacient, those that contain carbon in excess, which produces all the heat of the body. It is of the utmost importance to keep these facts clearly before the reader, as it is the chemical composition of food which should have so much to do with its selection, and it is well to remember no one can live without nourishment and heat.

Animal and vegetable food.

The former contains an abundance, and the latter a relatively small amount of nitrogen; that is the reason why a man requires far more nutrient (meat) food than calefacient (vegetable). If a man lives on animal food he has to eat a larger amount than is good

* According to Savory, this belief is unfounded so far as nitrogenous proximate organic principles are concerned.

or necessary to get sufficient heat out of it; on the other hand, if he eats all vegetable food, the amount of work required of his digestive powers to get out a sufficient amount of nutritive substance is very great, and a large amount of waste the consequence. To be economical, it is therefore better to eat a mixed diet; in fact, the teeth of man prove he is not carnivorous or herbivorous in his class, for his teeth and stomach are constructed for meat and vegetables, and he certainly does better on a mixed diet than on any other, and this opinion is expressed with all due deference to vegetarians. I believe there are a small class of people who do better on vegetable food, * but when vegetarians want to make the world believe it is the best *food* for man as a whole, I entirely differ with them. Persons calling themselves vegetarians, to have a thorough right to the title, are only those who are strictly vegetable

Mixed diet best.

* Case 6. J. B. writes:—"I am so much obliged to you, and shall be always grateful for your great skill in curing me of chronic dyspepsia, from which I have suffered for many years, and advising me to live on nearly a vegetable diet. I am sure you are right—my stomach cannot digest meat."

eaters and certainly not those who partake of milk, eggs and butter—choice foods of the animal kingdom.

Food should be both nitrogenous and non-nitrogenous.

To maintain both life and health the food, as I have said, must contain both nitrogenous and non-nitrogenous proximate organic principles. It must contain these principles in quantity sufficient to compensate for the waste of tissue, and generate enough heat to maintain the normal temperature of the body—or to put it very plainly, the food must be equal both in quantity and quality to the excretions.* Bread contains 30 per cent. of carbon and 1 per cent. of nitrogen; meat 10 per cent. of carbon and 3 per cent. of nitrogen.

Bread. carbon 30 p.c., nitrogen 1 p.c.
Meat: carbon 10 p.c., nitrogen 3 p.c

If a man eats bread only he must eat 4 lbs. of bread a day to get sufficient nitrogen out of it to repair the waste tissues, at the same time he would have taken twice the quantity of carbon necessary; if, on the other hand, he eats meat only, he would have to eat 6 lbs.

* A strong man excretes daily in temperate climates about 10 oz. of carbon, and rather more than ½oz. of nitrogen.

to maintain the heat of his body, and there would be an enormous quantity of nitrogen eaten over and above what is required, and which would put extra work on his kidneys. A combination of meat and bread is therefore the most advantageous, as for example— Scientific diet.

Bread, 2 lbs.
Meat, 12 oz

This would be a very monotonous diet, so to make it more pleasant we can add fat instead of so much bread, and combine as follows:—

Bread, 1¼ lbs.
Butter, ¼ lb.
Meat, 1 lb. (Dalton). *

I consider the amount of meat is too great, 8 oz. being sufficient, and a little farinaceous food (potatoes, rice, etc.), instead of the large quantity of bread and butter, would be an agreeable variation. This diet is adapted for a temperate climate; in very cold climates more calefacient food is required (fats and alcohols), and in hot climates we can dispense with the greater part of nitrogen and carbon and live on fruit. (*Vide* Fruit, p. 170.) For great muscular

* This is a scientific diet. In daily experience we use greater varieties of foods, such as eggs, etc.

work a large proportion of nitrogen in the form of meat should be taken.

Meat large quantities consumed.

Dr. Pavy, in his work "Dietetics", says: "Travellers have dilated on the large amount of food consumed by the inhabitants of cold, as compared with that consumed by those of temperate or hot climates. Thus Sir John Ross states that an Esquimaux perhaps eats 20 lbs. of flesh and oil daily."

Sir George Simpson says: "In one highly important particular the Zakuti (Siberian) may safely challenge the rest of the world. They are the best eaters on the face of the earth."

Sir John Ross says; "He who is well fed resists cold better than the man who is stinted, while the starvation from cold follows but too soon a starvation in food."

Taste should be studied.

We must in actual practice study the sense of taste and digestive powers, and so prevent loathing and disgust for any particular food; thus, for example, giving fresh vegetables to prevent scurvy. * It must never be forgotten

* The laws of alimentation are admirably illustrated by the consumption of milk and eggs, the typical food prepared by nature for the young of the mammalia and ovipara.

that the value of certain foods may depend quite as much on their digestibilities as on the relative quantities of the necessary elements which they contain.

Practical division of food.

Food may be divided for practical purposes into the following classes:—

a. Proteids or Albuminates	Nitrogenous	Nitrogen. Carbon. Oxygen.
b. Hydro-carbons	Non-Nitrogenous	Carbon. Oxigen.
c. Carbo-hydrates	Non-Nitrogenous	Carbon. Oxigen.

1. Nitrogenous (supply energy and promote warmth) Animal (meat, eggs, milk and cheese), Vegetable (peas, beans, lentils).*

2. Non-Nitrogenous: (*a*) carbo-hydrates (assist digestion and promote heat of the body), starches and sugar are found in all cereals and in the potato, and are also called saccharin and amylaceous foods; (*b*) hydro-carbons (much greater heat producers) consist of all kinds of fats and oils and are also called oleaginous foods.

* We have casein in milk, legumin in peas, lentils &c., gluten in wheat &c., all nitrogenous products.

We have also animal and vegetable gelatin, the animal is known as isinglass and chondrin, and the vegetable is found in plums, apples, &c.

Egg and serum albumins are soluble in water, precipitated by strong alcohol and are congulated (solidified) by heat. Casein is the albumin of milk, it is soluble in acids and alkalies, precipitated by rennet (pepsin and acid).

Legumin, the albumin of peas &c., is not coagulated by heat but by acetic acid or rennet.

The importance of the nutritive value of food lies in the quantity of nitrogen it contains. By the following table it can be seen at a glance the amount of nitrogen and carbon in a given number of lbs. (300 grs. of nitrogen and 4,600 grs. of carbon is required daily).

Table showing nutritive value of food.

	Lbs.	Grs. Nitrogen.	Grs. Carbon.
Bread	5½	306·25	6,911·45.
Oatmeal	2⅜	298 57	6.013·45.
Rice	4¼	303·55	12,272·45
Potatoes	14	302·80	35.711·20.
Milk (new)	7 (5¼pts.)	308·70	4,189·50.
Cream	10	294·40	22,519·00.
Beef (lean)	1½	311·85	1,362·90.
Mutton (lean)	1½	296·10	1,464 75.
Pork (fat)	2, 14 oz.	303·85	4.637 58.
Poultry (all kinds)	2, 5 oz.	296 70	2,264·63.
Fish (white)	2, 0 oz.	309 53	1,273·12.
Egg (entire)	2	303 80	1,661 0.
Beer and Porter	220 (22 gall.)	308·0	60,368 0.
Cheese (skim)	10 oz.	301·87	1.217·12.
Cocoa	1, 2 oz.	297·5	8,359·73.
Peas	1¼	309·75	3,373·12.

The amount of nitrogen and carbon previously mentioned as requisite daily is for a strong healthy man. The workhouse and prison diet contains only 180 to 200 grs. of nitrogen and 3,900 to 4,300 grs. of carbon, according to sex. It may be taken as a

correct maxim that while during the period of growth and middle age a good supply of food is essential, a diminished supply (particularly of animal food) is desirable in relation to health during declining years, when physical exertion is small and digestion not robust, and this is a most important point to consider if the elderly man desires to preserve his health and live to a good old age. He should gradually lessen the amount of strong nitrogenous food and fatty matter and substitute a lighter dietary which should be according to his habits and physical powers.

Large amount of nitrogen or carbon contained in some foods.

It will be well to note from the table lately given the large amount of nitrogen contained in skim cheese, cocoa, peas, lean beef, mutton, and eggs, and the large amount of carbon contained in beer, porter, potatoes, cream, and rice; and also that three quarts of milk would supply the body with sufficient material to keep it in working order, but that it would be much better, for the sake of digestion, to combine it with oatmeal.

Cooking.

There is no more important subject to the

dyspeptic than the art of cooking; many things that are shown to be easy of digestion are made difficult by being badly cooked, and *vice versâ*. A patient once told me that a celebrated physician whom she consulted gave her no medicine, but told her to *court her cook*. I have constantly given similar advice to patients. There are so many ways that a scientific cook can serve up food in a savoury and pleasant manner, that the odour thereof alone would make the gastric juices secrete of themselves, whereas the same food served up by a *messy* cook would create a disgust, and indigestion be the consequence.

A wise wife.

I could not help reading with amusement a clever letter written by a lady in the *Daily Telegraph* during the correspondence on "The Slavery of Drink," in which she stated she always set before her husband, when he came home, a nice savoury dinner, prevented the children and domestic troubles interfering with his meal, provided a cosy chair and a cigarette for her lord after he had finished, and then brought in their little cherubs, with the consequence that her husband seldom

went out in the evening, *even* to his club, which was close by. This pattern wife is doubly wise in her generation. Give a man a hard fried steak and badly boiled potatoes, mix his dinner up with the worry of children, and soon after dinner, when dyspepsia sets in and his mouth becomes parched, on goes his hat, and off he goes to his club or nearest public-house, and does not return until morning.

Dr. Beaumont found out, in the course of his experiments, that baked potatoes were more easily digested than boiled,* and that all starchy foods require careful and thorough cooking. This also applies to all farinaceous food, which should be subjected to 400° to 450° Fahr. If the starch cells are not broken they pass unchanged through the body, and diarrhœa is the consequence in young children. The woody fibres and skins of such foods as peas, beans and stalks of vegetables are quite indigestible, unless thoroughly broken up and macerated by cooking.

Dr. Beaumont's experiments as to heat required.

* The reason is that a higher degree of heat is applied to the starch cells in baked potatoes, which ruptures the starch cells and converts them into dextrine; this helps the saliva greatly in the conversion thereof into sugar (see Physiology).

Roasting and grilling.

Roasting * and grilling are the most scientific way of cooking, and should be done very slowly, the fire being free from smoke and the heat not too intense (a wood fire is doubtless the best).

In roasting, the heat hardens the outside surface by coagulating the albumen, so that the juices of the meat are prevented from escaping (170° Fahr. is the highest temperature required—*Liebig*): † The meat should be cooked slowly, and so kept before the fire for a long time, as by so doing the fibres are softened and made tender. Grilling meat is a capital form of cooking to make the food more digestible. For example—Take 8 oz. of rump steak, smear it well with butter, and add pepper and salt to taste; then place it on a clean gridiron over a wood fire, and turn it over repeatedly; you can tell when it is sufficiently cooked by both sides being of a rich brown appearance. I do not know of any food which is more

* I mean roasting before an open fire and basting, not baking in a half-ventilated oven.

† Good cooks should always have a thermometer by their side.

toothsome, digestible, and nourishing than this.* All kinds of meat, poultry, and fish can be cooked in a similar manner. Another excellent, cheap and digestible food is the meat off a rabbit. Boil it slightly, cut it up, and then follow the advice given above as to the preparation of the steak until the outside is quite brown.

Boiled meat.

It is quite a common mistake to suppose that boiled meat is more digestible than roasted; the reverse is the case. Liebig says the meat should be placed in boiling water, and that the boiling should be kept up for a few minutes. Then it should be taken off the fire, kept at the side with a temperature of from 158° to 165° Fahr. The colouring matter in the blood is not changed in colour below 150° to 158° Fahr. By boiling meat in this way all the goodness remains in the meat. Poultry is done sooner than beef or mutton, as it is white and contains little blood.

Liebig's advice.

* T. D. writes: "Your excellent method of cooking steak has, I think, done much to save my terrible indigestion. I eat no other kind of meat. Never shall I be able to repay you for the interest you have taken in my case. The advice you give is so sound and scientific, yet so simple."

Braising. Cover the meat with a strong liquor of vegetable and animal juices, place it in a closely covered vessel from which as little evaporation as possible is permitted, and expose it for a considerable time to a surrounding heat just short of boiling. Cook slowly. This process makes tough fibrous flesh and fresh meat tender and easy of digestion. It causes meats which are dry or of mild flavour, such as veal, to be saturated with juices and combined with sapid substances which renders them agreeable to the palate. To make the dish more satisfactory the meat should be *braised* in a pot made for that purpose and in which is a receptacle for hot coals or charcoals. Poultry, veal and delicate meats are best cooked in this fashion.

Frying. I will not discuss the subject of frying, as the frying-pan should never be used for cooking meat. It should be used only for poaching eggs, frying fish and making omelettes, the process of cooking the latter is a culinary art and can be alone taught by practical demonstration. Fine olive oil and beef

dripping should only be used to fry in, lard is the worst kind of fat to use for this purpose. The cook should remember that it takes a temperature of 500° Fahr. to boil oil. (Water 212° Fahr.).

Table of times various foods take to digest.

It is most important for the dyspeptic to study the digestibility of various foods differently prepared. I therefore give, for their guidance (from Dr. Beaumont's table), the time some of the principal foods take to undergo chymification:—

Foods.	Preparation	Time. h.	m
Rice	Boiled	1	0
Tripe	Boiled	1	0
Eggs (whipped)	Raw	1	30
Trout and Salmon	Boiled	1	30
Venison Steak	Broiled	1	35
Tapioca	Boiled	2	0
Milk	Boiled	2	0
Liver (beef's fresh)	Broiled	2	0
Turkey (domestic)	Roasted	2	30
Lamb (fresh)	Broiled	2	30
Hashed Meat and Vegetables	Warmed	2	30
Beans (pod)	Boiled	2	30
Potatoes (Irish)	Roasted	2	30
" "	Baked	2	30
Beef (salt)	Boiled	2	45
Oysters	Raw	2	55
Eggs (fresh)	Soft-boiled	3	0
Beef (fresh, lean)	Roasted	3	0

Foods.	Preparation.	Time. h.	m.
Mutton (fresh, lean)	Broiled or Boiled	3	0
" "	Roasted ...	3	15
Bread	Baked ...	3	30
Butter	Melted ...	3	30
Eggs	Hard-boiled ...	3	30
Potatoes	Boiled ...	3	30
Beef	Fried ...	4	0
Fowls	Boiled ...	4	0
"	Roasted ...	4	0
Duck	Roasted ...	4	0
Veal	Fried ...	4	30
Cabbage	Boiled ...	4	30
Pork (fat)	Roasted ...	5	15

Alcohol.

Anyone writing on digestion, dietetics, etc., must at the present time place alcohol first in importance, on account of the extraordinary differences of opinion which prevail on this subject. * Alcohol must be reckoned as a food, for it comes under the following definition: "It is a substance taken into the stomach where it undergoes changes, and so is fitted to repair the losses of the organism or at least preserve it."

* The readers who are interested in this subject should read the discussion that took place at the annual meeting of the British Medical Association, at Bournemouth, led by that distinguished physician Dr. Wilkes. I hope the Association will publish it separately.

Alcohol or spirit is found in brandy, whisky, gin, rum, port, sherry, other wines, and beer, which are called fermented drinks, in the following proportions:—

Percentage of alcohol in common drinks.

100 parts of		contain
Porter (London)		4·20 per cent
Cider		5·00 „
Stout (Dublin)		6 80 „
Ale (Burton)		8·88 „
Claret		9·10 „
Champagne		11·00 „
Sherry	about	16·96 „
Port		21·90 „
Gin		36·00 „
Rum		50·00 „
Brandy		53·39 „
Whisky (Irish)		53·90 „
Whisky (Scotch)		54 32 „

Facts to be noted as to alcohol.

The following facts *re* fermented drinks are worth noting:—

1. Alcohol in small doses increases the frequency of the pulse.
2. The temperature is unaffected, perhaps slightly increased at first.
3. A large proportion of spirit taken appears in the urine and breath unchanged.
4. It retards the wear and tear which goes on in the body.

5. Alcohol when taken in large quantities may prevent the oxidation of the glycogen (*vide* liver) and cause an unhealthy deposition of fat, or produce fatty degeneration of tissue generally.
6. Sir Robert Christison says that as to sherry and madeira in casks, the alcohol increases if kept for a moderate term of years, and afterwards decreases.*
7. Ales contain sugar, gum, and bitter extractive matter, besides alcohol.
8. Wines contain sugar, tannin, and extractive matter.
9. With those who drink large quantities of spirits, wine, or beer, and get fat, it is not due to the direct nourishing properties of these, but to the fact that the hydro-carbons of the food are prevented from undergoing combustion as they should, and the tissues themselves are apt to undergo fatty degeneration.

* I believe it has been proved lately by experienced custom-house officers, that the alcohol does not decrease by years.

10. Spirits when taken raw, too new or undiluted, act as irritants to the mucous membrane of the alimentary tract.
11. All the bad effects of alcohol are generally produced by taking it on an *empty stomach*; it should be taken with food, or on a full stomach.
12. If alcohol is used in too large a quantity for any length of time, it tends to retain effete material in the blood, which produces gout and rheumatism (from fermentative processes occurring) and also general disease.

Popular fallacy.

It is a popular fallacy that alcohol (say a glass of hot whisky and water) enables people to resist cold and adds to their warmth (although, I must confess, it is a very nice beverage when starting out on a cold night), and also that alcohol gives strength. There is very little nitrogen in it, and the sugar in it goes to make fat. It might nourish the body if deficient in fat and taken to supply the necessary amount of heat-producing material (porter contains 60,368·0 grains in 22 gallons). Physical work produces heat and wear of the body.

I will not enter into arguments about the harm, misery and crime it is responsible for, because, if we went upon that line of argument, the use of opium and other valuable drugs would have to be given up; it is sufficient to inform the reader that as many people die from eating too much as from consuming too much alcohol. Maxim, "Be moderate in all things." *

Some people can take beer and wines, which appear to do them good; others do not seem to require any, so no definite rule can be laid down upon the subject.

Alcohol as a medicine.

In cases of indigestion I have frequently found that a glass of stout does much good and helps digestion, particularly in cases of young ladies who have always been water drinkers. I have also found that matured Scotch whisky, well diluted with water, acts

* Case 7. I once advised a lady patient to take ale drawn from the cask. Her doctor said she could not take it. I still considered she required it, and told her to take four ounces at 11 a.m. with a biscuit, and then walk three miles. After a few weeks she was able to take a pint a day, and was greatly improved in health and weight. I quote this case to show that people can sometimes take beer (when they think they cannot), if they take it under proper advice and as a medicine.

as a stimulant to the mucous membrane of the stomach in cases of old people whose vitality is on the wane.* Some patients who suffer from the catarrhal kind of indigestion, due to excess of alcohol, often do very well on sound claret mixed with water, when all other kinds of stimulants are forbidden. Consumptives who suffer from indigestion due to constitutional debility are often greatly benefited by two glasses of good port wine a day. There are many other cases in which stimulants in some form or other are of great benefit. I will conclude my remarks on alcohol by saying that old brandy is one of the most powerful, useful, and certain medicines we possess. As a non-alcoholic drink ginger-ale, when carefully prepared from pure ingredients, is of great benefit in many cases of Indigestion, the ginger contained in it acting as a slight stimulant to the mucous mem-

* Case 8. In a case of an old lady who had a gouty form of indigestion for years, and whose nights were always sleepless by reason of the food she had eaten remaining too long in the stomach and undergoing fermentation, I ordered her 2 oz. of whisky mixed with a bottle of potash water before going to bed, which entirely cured her insomnia.

brane of the stomach. I frequently indulge in this beverage myself.

Tobacco. Since the first edition of this work was published I have had a large number of letters from readers asking my opinion on the use of tobacco, and stating that they thought I should have mentioned it in the work. In deference to their wishes I will deal shortly with it in this edition.

I have been complimented by many of my reviewers for the "strong language" I have used in the work, and to justify the compliment still further I will at once, without any hesitation, say that I do not believe anyone is in any way the better for the use of tobacco that large numbers of people are undoubtedly injured by it, and still further that to a few it is absolutely poisonous. I believe, however more harm is done by smoking nasty, dirty pipes saturated with *essential oil* than by the actual *smoke* itself. Let a man carefully clear out his pipe every few days, smoke fine sun-dried tobacco, and at regular and suitable times, and he may indulge moderately in the luxury all his life without any evil effects

An inteverate smoker who has never a cigar or pipe out of his mouth (except when asleep) comes within the same category as a drunkard, gourmand or opium eater.

Milk is certainly a complete food—see how a baby thrives on it, and also the young of animals. It contains all the necessary elements to supply the waste products of the body, and is more universally employed than any other food. Dyspeptics have often told me they cannot "digest milk." This is caused by there being too much acidity in the stomach, which at once coagulates it. By mixing with the milk some lime water or carbonate of soda, coagulation is avoided. I always give a few drops of "raw meat-juice" when I place my patients under a milk diet, so that they need not have to take so large a quantity. I have already warned the reader that unfortunately for the great value of milk as a food are the dangers that we incur in drinking it from unknown sources; it is therefore better to always have it boiled.

Condensed milk, when properly prepared from the best new milk from healthy cows

fed on proper food, is a capital substitute for new milk. The prejudice against it has arisen from the abominable concoctions sold as "condensed milk."

We call a food "complete" when it contains all the elements necessary to the support of the body.

Tea. Like Dr. Johnson of old—I like my tea! I think I favour tea more than any other physician in London. "Drink tea!" my patients often utter with horror, "why, my doctor told me never to touch tea!" It certainly is not a food, but a very grateful stimulant, which is due to a substance called "*theine*," which it contains. In a small number of people it causes flatulence and palpitation of the heart. I consider tea an excellent stimulant after much fatigue, and when taken a few hours after food, an aid to digestion. It is said to prevent an unhealthy wear and tear of the system by promoting perspiration. I believe the whole fault in tea lies in the making of it—it is unintelligible to me why people cannot make tea properly. Of course, if the water is not boiling, or *hard* boiling

water is used; a proper infusion is not made, and if the boiling water is allowed to stand upon it more than two minutes, or the tea allowed to stew, *tannin* is dissolved out, and it becomes positively harmful. The poor who partake of large quantities of weak tea daily suffer a craving for food, colicky pains, flatulence and diarrhœa, and become pale and bloodless, nervous, depressed, and often faint. I think these symptoms are principally due to the hot water and only secondary to the tea, as they use so little of the latter. The abuse of tea brings on many nervous diseases, and is injurious to digestion, and may be compared to drinking too much hot water plus a stimulant and an astringent, and so *increasing the beating of the heart* unnecessarily. The injurious part of the tea is the tannin it contains. (Ceylon tea is said to contain less than China or Indian teas.) This requires some time to dissolve out of the leaf, and renders the infusion black and bitter to the taste. It acts as an astringent to the mucous membrane of the stomach, causing it to become pale, and prevents the secretion of gastric

Abuse of tea.

Tannin.

juice, and it is also harmful to the intestines, producing constipation.

Adulteration of tea.

Tea is constantly adulterated with all kinds of things, other leaves being substituted (sloe, hawthorn and beech leaves). * The colour is often produced by Prussian blue, indigo, and burnt gypsum. Green tea is quite an artificial tea.

Coffee.

I am not fond of coffee as a beverage; it frequently produces biliousness, and brings on a fit of indigestion, although in some people it seems to have the contrary effect. Coffee was used as a beverage in Europe long before tea was known. Dr. Pavy says it was used in Abyssinia since A.D. 875. Like tea, coffee is a stimulant, and increases the action of the pulse, and relieves the sensation of hunger and fatigue. It is unlike tea, as it does not act on the skin, but more on the bowels. Coffee produces heat when one is cold: tea by inducing perspiration lessens the heat of the body when one is

Difference between coffee and tea.

* The pure tea-leaf when unfolded has the whole length like the edge of a saw (serrated). The veins run out from the tendrils. They are odourless when freshly gathered, the taste and aroma being developed during drying.

hot. Coffee contains an ingredient called "*caffein*," which has been used of late as a medicine for sick headaches, etc. To make the decoction properly, take four tablespoonfuls of freshly-ground coffee, add a pint of boiling water, and boil for two minutes, stir thoroughly and strain. I believe coffee causes indigestion more frequently than tea; if a patient thinks that coffee is the cause of his dyspepsia, let him first try it without sugar, and then without milk. When it agrees with people I consider coffee a pleasant and harmless beverage when taken in moderation.

Cocoa.

The reader will remember the large proportion of nitrogen and carbon cocoa contains, so it must be considered a food of the highest value in the point of nourishment; unfortunately it does not seem to agree with most people, the oil it contains being too rich for weak stomachs. Cocoa is also frequently adulterated with starch and sugar and farinaceous substances which produce heat, acidity, and distension of the stomach. Properly speaking, cocoa should be made

Adulterations.

Cocoa beneficial for [illegible] people.

from freshly ground *nibs*. I have frequently found that cocoa has acted very beneficially on people who have abused their stomach by drinking excessively of tea, coffee, or spirits. The number of advertised cocoas is legion, and it would be invidious to name any particular maker, there being so many honest ones in the market.

Chocolate

Chocolate is a capital beverage on a cold winter's day before going out, taken without any other food except a few biscuits.

Water.

This is the great source of all our drinks—in fact, without water the whole of the animal and vegetable creation would cease to exist. Many people say there is no taste in water; I disagree with them. I like the taste of water, and can distinguish the different kinds of water, and look upon a glass of pure spring water with the same delight as on a glass of good beer. Water forms the greater part of the blood and all other secretions of the body, and of beer, wine, and all other drinks, and is, therefore, a most important factor in human economy. I consider no expense is too great to ensure a pure supply of

Pure supply most essential.

uncontaminated water, and London should be the first place to look after its source. At present it is horrible to witness the number of house boats, rowing boats, and barges upon, and the refuse which gets cast into, the river whence London gets the bulk of its supply. True, it is filtered, but can any filter separate sewage particles? Either no water for drinking purposes should be taken out of the Thames, or else a strong law should be passed that imprisonment would be sure to follow anyone polluting it. There is plenty of water everywhere, and wells could easily be made and water supplied as pure as the West Kent Water Works supply it. I have been constantly struck with men who are godly and follow the excellent tenet that "cleanliness is next to godliness," yet who place a solution of sewage on the table for their family and visitors to drink. I was once called into a consultation and diagnosed the case to be one of incipient typhoid fever. The father of the patient was rich, and the house, large and costly, situated in the country. I told the father I blamed the water,

Case showing danger of bad water.

and the medical practitioner agreed with me. The old gentleman got quite cross, and said that he and his father, mother, sisters, and brothers had drunk the water and never had anything the matter with them, and therefore the water was all right, and he disliked the new-fangled ideas about water, germs, etc. He would not be advised. Six months after this I learnt he had lost his wife, two children, and a servant by diphtheria.

Water boiled and filtered.

If there is the slightest doubt about water it should be boiled and then filtered, and kept in a cold jar for not more than twenty-four hours. The table-filter and other domestic filters made by the Silicated Carbon Filter Co.* are to be recommended. I have tested them personally and can speak in the highest terms of the efficient manner these filters perform their work. I found a small table-filter, supplied by the company, filtered a solution of lead and strychnine in a few minutes. They are easily cleaned; have no sand, sponge or charcoal, which are practically useless, but a movable block of silicated carbon, and are self-aërating, a very

* Since this was written it has been demonstrated that these filters are not germ proof.

valuable addition to a filter.* Water dissolves many foods, and enables them to pass into the system, and the effete products to pass out in solution through the kidneys; for this purpose about two-and-half pints are required daily. It is used much in various diseases,† particularly in indigestion, gout, obesity.‡ Uric acid, the poison of Gout, takes 200,000 times its weight of water to dissolve it, and as the poison is especially eliminated by the kidneys, large quantities of water may be drunk to get rid of it;* it should be drunk warm the first thing in the morning,—say a pint sipped slowly, but more or less may be required according to the disease. I need scarcely say that more water is required in summer than in winter. The un-

Water a solvent.

* Natural Mineral Water, such as "Johannis," is better than ordinary water for patients suffering from gout, rheumatism, and obesity, on account of the salts contained in it. Dr. Maybury, D.Sc. Lond., has confirmed for me the analysis given by the Johannis Springs, Limited. It is rich in salts of lime, magnesia, soda and lithia.

† I cured an old friend of my father's entirely of gout, obesity, and indigestion by hot water, potash water, a strict diet, and daily exercise in all weathers. For his port wine and beer, whisky and claret were substituted.

told blessings of water are not realized until one drags his weary legs through an African desert or a tropical country.

Sugar

Sugar may be said to be one of the great dietetic articles constantly used in food, and a great calefacient or heat-producing substance, and from which the store-house of fat is continually being renewed. We use it daily in nearly every article of food, and all the starch we take is converted into sugar (*vide* Physiology). Although so valuable a dietetic, if taken in too large a quantity, or into a diseased stomach, it is converted into lactic and uric acids, with the consequence that rheumatism, gout, and indigestion result. We only require to take sufficient for the purpose of oxidation and heat.

Saccharin.

Physicians for a long time did not know what to substitute in the place of sugar; they knew it was not the sugar which was craved after, but the sweet taste it produced. Dr. Fahlberg came to our aid and discovered saccharin, a perfectly harmless and innocuous substance. Saccharin does not interfere with or impede the digestive processes, and its

continuous use has been proved harmless. It can be used to sweeten tea, coffee, fruit pies, pastry, and jams, and the smallest amount of the powder or a pellet will sweeten a large cup of tea. We have no more valuable substance than this for the treatment of various forms of indigestion and obesity.

Meat is doubtless eaten in too large a quantity by the man who leads a sedentary or intellectual life without any opportunity for active exercise, and who is constantly using his brain and not his muscles. The morbid materials produced by the meat are not eliminated from his system and therefore he has to put up with periodical bilious and gouty attacks which torment his very life. He who can afford it rushes off to some foreign Spa once a year, or engages himself in some active exertion, as Alpine climbing, grouse shooting, etc., etc., when he takes his annual holiday, when he is not in a fit condition to undergo this exertion, the necessity for which could be easily avoided if he only adopted his diet to his mental and physical demands. He would

Meats.

then be as healthy as his brother man who has time and opportunity for and lives by exercise.

[redacted]ivide meat into *red* and *white*; the [redacted]des beef, mutton, venison and pork, the latter poultry, game, rabbits and pigeons. The red meat requires good healthy digestion and plenty of exercise to consume it, otherwise it does harm and produces urea in the blood. White meat is easier of digestion and does not require much physical exercise to consume it, so it is better suited to those who live in towns and whose work is mental. As I have said elsewhere, [redacted] the utmost importance that the cooking should be carefully attended to, as bad cooking would undoubtedly upset the theory here laid down. I have elsewhere stated that I think a mixed meal is the best, and no doubt it is for those who can take plenty of walking or riding exercise, but those with a weak digestion who take a little soup, fish and red meat for dinner should confine themselves to either soup, fish or white meat for lunch, and not indulge in all three. For

directions how to select fresh healthy meat : see page 159.

Beef-tea is the best example I can give of meat. As *usually* made, it contains little nourishment, the chief thing [redacted] salts and flavouring portion, nearly the whole of the albumen or flesh-giving substances remaining behind. Of course, as the reader will have already learnt, it is this albumen that meat contains which renders it so valuable as a dietetic, and places it first among the articles of diet. Beef itself (*vide* Table) contains the largest portion of nitrogen, but this is useless unless it is dissolved out and in a proper condition for absorption. [redacted] the reason why raw beef-juice, which I have alluded to, is so valuable as a nutritive diet. Dr. Roberts, in a lecture, laid down a true axiom when he said, "The quantity of food that is taken and absorbed appears to be regulated not so much by the quantity that can be digested, but by the amount that can be assimilated."

Beef-tea.

Dr. Roberts as to food.

The best way to prepare beef-tea is to add a pint of water to a pound of lean meat, let in stand two hours in a covered gallipot,

Best method of preparing beef-tea.

which should afterwards be put into a saucepan containing water which should be gradually raised to boiling-point (212 degrees Fahr.). When the water in the gallipot has simmered for fifteen minutes, take it off, then press well and strain. A temperature of 105·5° Fahr. begins to coagulate the albumen; at 140° Fahr. same is completely coagulated. The cold water draws out more albumen and salts than boiling water.

Beef-tea, when made properly, is of great service to dyspeptics; but it is important to recollect that if the teeth are good, meat itself should be taken, as the act of mastication favours digestion (*vide* Teeth). For the times various meals take to digest see Table. (Pp. 141—142.)

Soup. Jules Gouffé says, "The broth of beef is the foundation of domestic cookery.

"It constitutes the most essential and really nourishing part of our daily food, that is, good meat. It is, moreover, the basis of a large number of culinary preparations such a sauces, purées, etc.

"The chief of all broths is undeniably

beef-broth, many others, of course, existing, such as those of fowl, vegetables, fish and game."

This is perfectly true and it is very singular that soups are so lightly esteemed in England, to the poor (to whom they should really belong) they are nearly unknown. We divide soup into *clear* (juices of meat) and *thick* (purées of animal or vegetable matter). Only the French cook knows the variety of vegetable purées that can be blended with animal broth and which are still flavoured with fresh vegetables and afford a large scope for the taste. Dried and compressed vegetables should not be used, for the finest qualities of scent and flavour, with some of the fresh juices, are lost in the drying process.

The French peasant woman is noted justly for her *stock pot*. Every trimming from the joint, every morsel of flesh, be it meat, poultry or game, goes into it, and what is more, the bones are well bruised and added also. From it she makes most nourishing soup, with a few fresh vegetables added to develop the flavour. In this way she may set before

her lord and master a most appetising supper, when our labourer's wife could only place before her husband bread and cheese, having washed or thrown away various things which go to form a *stock pot*.

Soup when scientifically made is invaluable as a food for the weak, dyspeptic brain worker, and all who have to live a sedentary life. It should take the place of meat at lunch, or at supper when people dine in the middle of the day.

We can make soup from meat, game, poultry, vegetables and fish, and with fresh vegetables and flavouring matter we can put on the table four to five hundred different kinds of soup; so the variety is sufficiently extensive to suit the most fastidious taste.

The flesh of fish, although not so rich in nitrogen as that of animals, contains it in fair quantities, and has an advantage over the latter by being so much more easily digested. Salmon, eels, and red herrings contain the most nourishment; when boiled they are digested in one-and-a-half to two

hours.* In fact a fish diet is often most beneficial to dyspeptics and those who lead a sedentary life or whose occupation is of an intellectual kind, when their appetite is not too large, although this is not an infallible rule, for I have patients who cannot digest fish at all well. I always recommend that a meal should consist of a little soup, fish and meat, so that each should not be taken in too large a quantity at a time. It is a pity for everyone that fish is so difficult to get fresh and cheap. London is waking up to this drawback, and I think before long we shall be able to get it in abundance and within a few hours after it leaves the sea.

Of what a meal should consist.

England with her two sister countries possesses the best opportunities of nearly any country in the world for securing a very large

*Sir Henry Thompson (in "Food and Feeding") describes a capital way of cooking fish, which has greatly taken my fancy, for it is so ingenious and practical.

"It consists in placing the fish entire, if of a moderate size, in a tin or plated copper dish adapted to the form and size of the fish, but a little deeper than the thickness of it, so as to retain all the juices, which by exposure to heat will flow out. First, however, the surface of the fish is to be lightly spread with butter and a morsel or two added round it; the dish then is placed in a Dutch or American oven, in front of a clear fire."

cheap supply of fish, but at present we pr[illegible]re so little that to the great majority of the inhabitants of Great Britain fish is a rare luxury.

Bread.

I need not say much about this, as it is the *staff of life*, and most people know about it. Unfortunately the baker is not always an honest man, and the adulterations of bread are many—alum, salt, tartrate of potash, potato flour, and other kinds of flour besides wheat flour being used in the composition of bread. These adulterations occur more in the poorer neighbourhoods where the people trust to bread mainly for nourishment. I have examined many bad specimens of bread which would actually *cause* indigestion by promoting fermentation. It is a pity that the poor have given up making their own bread; fortunately it is still made by the peasants in the country. A short time ago I tasted some home-made bread in Lincolnshire, which was easy of digestion and most nourishing; one loaf would go as far as three "East End loaves." I have invariably found Nevill's bread of a superior quality and well baked, and always

Adulterations.

Home-made bread.

eat it myself when able. To make an excellent light, friable and most palatable bread take 2½ lbs. whole wheat meal, a pound of fine flour and a sufficient quantity of baking-powder and salt. Mix and rub in 2 oz. of butter and make into dough with half milk and water. Make in flat cakes like "tea cakes," bake without delay in a quick oven. Here is a simple formula for baking-powder quite free from harmful properties; the ingredients can be obtained at any chemist. Tartaric Acid 2 oz., Bicarbonate of soda 3 oz., common arrowroot 3 oz., mix well and put it into a perfectly dry bottle, such as a pickle bottle. In many cases it is well to get the moisture out of the bread by toasting, when it is often much better for dyspeptics and more easily digested, the saliva being better able to mix up with it. Bread takes three hours and thirty minutes to digest, and contains 306·25 grs. of nitrogen, and 6,911.45 grs. of carbon in three pounds and a half.

Macaroni is a valuable food, being made of the best part of wheat, viz., Gluten from Macaroni.

which the starch has been removed. Unfortunately this cheap and nutritious food is so badly cooked in England as to be most indigestible. Macaroni prepared à l'Italienne is a good diet for lunch or supper.

Vegetables useful for nitrogen and salts they contain

Vegetables are very valuable as adjuncts to meat and bread. Some are useful for the large quantities of nitrogen they contain, other for the salts they contain, such as citrate of potash, etc. Peas, lentils, and all vegetables of that class are very high up in the table of nitrogenous products, and to these the vegetarian has to go for his nitrogen. Potatoes contain large quantities of potash, phosphoric acid, carbon, and heat-giving materials. Vegetables when properly and carefully cooked * are generally very digestible, but sometimes they cause fermentation, and should be avoided. Among the most easily digested are asparagus, artichokes, vegetable marrows, cauliflowers, turnips, and potatoes (when baked). Cabbage should

Vegetables easy to digest.

* Vegetables are generally so badly cooked in England that it is no wonder people consider them indigestible. When vegetables are old the French stew them gently in a little water and add butter, onion, flour, salt and sugar.

be avoided by dyspeptics as it takes four hours and a half to digest, and produces flatulence.

Legumes, like the haricot bean (white or red), are rich in nitrogen, starch, mineral matter and fat, and form a cheap and wholesome dietary for the poor and are also useful in many cases of dyspepsia where meat cannot be digested. They should be soaked in cold water for about twelve hours, and placed in a saucepan with a quart of water to each pint and boiled for two or three hours. When soft and ready for table, sprinkle a little salt and pepper and add a small quantity of melted butter, and if nothing to the contrary be indicated a few slices of bacon. This will make an excellent meal. If stewed until quite soft these make an excellent purée (soup) if flavoured with onions. Veal stock flavoured with vegetables should be used. Legumes

Erbswurst, eaten by the German army during the war of 1870-1, is composed of a dried mixture of peas, bacon and lard, from which soup can be made in a few minutes by adding

boiling water. My late friend Captain Paul Wolff told me the men looked and did very well on it.

Fruit.

Sufficient attention has not been bestowed in this country on the importance of fruits as food. They are of sterling value. They

Salts contained

contain potash, soda, phosphoric acid, nitrogen, carbon, etc., all of which illuminate our life and make it well worth the living. The Greeks, we know, lived on fruits, hence the saying "a sound mind in a sound body," which was considered *Greek life*. Ripe fruit does not cause disease, and the vegetable acids contained therein lower the temperature of the body and decrease the process of combustion or oxidation and the waste of the system; less sleep is required, activity is increased, fatigue or thirst hardly experienced, and life altogether prolonged.

Dyspeptics and fruit.

This is doubtless the case in an even climate, but in a climate like ours I consider we must supplement our diet with meat and fish, but sometimes for the dyspeptic a fruit diet produces untold joys. The amount of phosphates contained in apples, toma-

toes, and potatoes,* (without *phosphorus*, no thought, †) causes them to be brain food of high value. At the present time, man is undergoing a slow but certain incremation upon the altar of cupidity and ambition; this nervous exhaustion causes dyspepsia, an inert liver, and other complaints, and the only way to prevent the incremation is to supply phosphorus as fast as it is burnt, by means of the fruits and vegetables I have named. It has been said that consumption is due to a specific deviation in the nutritive process, by the withdrawal of the free phosphorus which is the most salient morbid phenomenon of tubercular disease. § Fruit should be taken at breakfast or lunch; it should be freshly gathered and ripe. Among the most valuable fruits in this country are, as I have

Phosphates in apples, potatoes, etc.

Consumption.

Valuable fruits.

* Potatoes when boiled with their skins on lose a little more than 2 per cent. of their potash and about 1 per cent. of phosphoric acid, but if they are boiled after being peeled they lose as much as 33 per cent. of potash and 23 per cent. of phosphoric acid. If potatoes must be peeled they should be steamed, not boiled.

† Man's brain contains 2 grs. of free phosphorus in 100 grs.

§ I nearly always give my consumptive patients phosphorus with good effect.

said, the apple and tomato; there are also greengages, cherries, melons, pine apples, pears, grapes, bananas, peaches, apricots, plums, etc. It is a great pity that means are not found to provide large towns with fruit at reasonable prices. I am sure fruit farms would be as profitable as dairy farms round about London.

Table of degrees of digestibility of different foods.

The following Table will be found of great utility to dyspeptics, as by it they can regulate their diet. The *a*. *b*. *c*. columns can be taken as examples for dieting, making allowances for the state of the digestion, the time at disposal for the meal, and other considerations, which can be understood:—

Foods Easily Digested. (1 to 2 hours.)	The Moderately Digestible (2 to 3 hours.)	The Difficult to Digest. (3 to 4 hours.)	Indigestible.
Milk (2 hours)	Boiled eggs	Beef (fried)	Pork*
Milk with soda or lime water	Mutton (roast)	Mutton (fried)	Veal
Beef-tea	Beef (roast)	Liver	Sausages
Rice	Beefsteak (tender)	Kidney	Salt beef (cold)
Eggs	Chicken	Cold meats	Hashes and stews
Tripe	Rabbit	Salt beef	Red herrings
White fish	Grouse	Duck (roasted)	Fried meats
Oysters	Venison	Fowl "	Hard-boiled eggs
Jellies	Salmon	Pork "	Lobster
Custard	Turkey	Meat and vegetables stewed	Dumplings
Toasted bread	Bacon	Pheasant	Radishes
	Farinaceous preparations	Partridge	Nuts
	Bread (fine white flour, well baked)	Goose	Unripe fruit
	Potatoes (mealy)	Salt pork	Bread (new)
	Fruits (ripe)	Bread (fancy)	Cabbages
	Asparagus "	Cakes "	Currants
	Artichoke	Puddings	Shell-fish
	Vegetable marrow	Pancakes	
	Cauliflower	Muffins and crumpets	
	Parsnip	Preserved meats, sardines, etc	
	French beans (new)	Carrots	
	Brussels-sprouts (young)	Potatoes (new)	
		Beans	
		Peas	
		Cucumbers	
		Celery	
		Cheese	

* Some foods are not really indigestible, but will be found too rich and stimulating for weak stomachs. Alexis St. Martin, for example, only took three hours to digest pork. I am sure my stomach takes a day to digest it.

A TABLE showing the various foods which are in season in the different months of the year. Beef and Mutton and Potatoes are in season the year round. I have classed under "game" birds which I have not included in poultry. Many things I have altogether left out, for the reason that I consider them unfit for a general diet, or too rare and expensive for people with ordinary means.

	JANUARY.	FEBRUARY.	MARCH.	APRIL.	MAY.	JUNE.
Meat.	Venison		Venison	Lamb	Lamb Calf's Liver	Lamb Venison, buck Calf's Liver
Poultry.	Fowls Capons Pullets Turkeys Wild Fowl Pigeons	Same as January.	Fowls Chickens Turkey Pigeons	Pullets Chickens Fowls Pigeons, Wood	Fowls Pullets Chickens Pigeons, Wood	Fowl Pullets Chickens Pigeons
Game.	Hares Rabbits Pheasants Partridges Grouse		Rabbits Guinea-Fowl Woodcocks Snipe	Rabbits Leverets	Leverets	Leverets Plovers

	Soles	Same as January.	Turbot	Brill	Brill	Soles
	Plaice		Whiting	Flounders	Flounders	Turbot
	Whiting		Soles	Mullet	Mackerel	Mackerel
	Haddock		Plaice	Mackerel	Perch	Mullet
	Herrings		Mackerel	Turbot	Whiting	Haddocks
	Oysters		Trout	Soles	Gurnet	Trout
	Shell-fish		Shell-fish	Whiting	Haddocks	Pike
				Trout	Soles	Tench
				Plaice	Turbot	Carp
				Shell-fish	Trout	Shell-fish
Vegetables.	Cabbage		Savoy Cabbage	Asparagus	Asparagus	Asparagus
	Broccoli		Sprouts	Beans	Beans, Kidney	Beans
	Spinach		Spinach	Broccoli	Turnips	Cauliflower
	Celery		Lettuce	Cucumbers	Spinach	Peas
	Turnips		Artichokes	Lettuce	Rhubarb	Marrows
	Artichokes		Broccoli	Rhubarb	Cauliflower	Turnips
			Celery	Turnips	Salads	Salads
			Rhubarb	Spinach, Turnip-tops		
	Apples		Apples	Apples	Cherries	Apricots
	Grapes		Oranges	Oranges	Gooseberries	Peaches
	Oranges				Strawberries	Grapes
	Lemons					

	JULY.	AUGUST.	SEPTEMBER.	OCTOBER.	NOVEMBER.	DECE
Meat.	Lamb Venison, buck Veal	Lamb Venison Veal	Lamb Venison Veal	Lamb Venison Veal	Venison	Venison
Poultry.	Fowls Chicken Turkey, poults Pigeons, tame and wood	Fowls Chicken Turkey Pigeons	Fowls Chicken Pullets Turkey Goose	Turkey Pullets	Pullets Turkey Goose Pigeons	Capons Turkey Goose Wild Fow
Game.	Leverets Plovers Wheatears	Grouse Moor game Plovers Rabbits	Partridges Hare Rabbits Grouse	Pheasants Partridges Grouse Hares Rabbits Woodcocks Larks Snipe	Pheasants Partridges Grouse Hares Rabbits Snipe Woodcocks	Pheasants Partridges Grouse Hares Rabbits Larks Woodcock
Fish.	Mackerel Mullet Plaice Soles Haddock Whiting Trout	Mackerel Mullet Plaice Soles Haddock Gurnet Whiting	Cod Herrings Haddock Plaice Soles Mullet Brill	Brill Gurnet Smelts Halibut Hake Oysters Trout	Soles Smelts Gurnet Brill Herrings Whiting Skate	Sturgeon Turbot Soles Skate Cod Haddock

	Barbel	Trout	Perch	Barbel	Oysters	Carp
	Shell-fish	Tench	Dace	Shell-fish	Carp	Perch
		Perch	Trout		Barbel	Dace
		Barbel			Pike	Tench
		Shell-fish			Tench	Oysters
					Shell-fish	Shell-fish
Vegetables.	Beans, all kinds	Beans, French and Scarlet	Cauliflower	Turnips	Turnips	Cabbage
	Asparagus		Cabbage	Cabbage	Cabbage	Broccoli
	Artichokes	Artichokes	Turnips	Cauliflower	Leeks	Brussels-sprouts
	Lettuce	Lettuce	Peas	Leeks	Artichokes	Spinach
	Mushrooms	Cauliflower	Artichokes	Spinach	Beet	Celery
	Spinach	Turnips	Mushrooms		Celery	Artichoke
	Turnips	Spinach			Mushrooms	Mushroom
	Peas	Peas				
	Salads	Salads				
Fruits.	Pine-apples	Apples	Apples	Apples	Apples	Apples
	Pears	Pears	Pears	Pears	Pears	Pears
	Currants	Plums	Plums	Plums	Quinces	Oranges
	Cherries	Peaches	Cherries	Peaches	Grapes	Medlars
	Gooseberries	Greengages	Peaches	Medlars		Figs
	Strawberries	Cherries	Grapes	Pines		Grapes
	Raspberries	Currants	Pines	Grapes		
	Plums	Raspberries	Currants			
	Peaches	Gooseberries	Tomatoes			
	Nectarines	Nectarines				
	Tomatoes	Tomatoes				
		Figs				

Public Health Act—1891.

The following section is from an Epitome by A. C. Maybury, D.Sc. Lond., on the Public Health (London) Act, 1891,* which Act has come into force since the first edition of this work was published, and should be carefully studied by every householder.

Unsound food.

"Any medical officer of health or sanitary inspector may at all reasonable times enter any premises and inspect and examine (*a*) any animal intended for the food of man which is exposed for sale, or deposited in any place for the purpose of sale, or of preparation for sale; and (*b*) any article, whether solid or liquid, intended for the food of man, and sold or exposed for sale, or deposited in any place for the purpose of sale, or of preparation for sale, on obtaining an order from a justice. The 'unsound food' may be destroyed, and a penalty, without option of a fine, of imprisonment may be imposed. (47)" [illegible] housewife should know how to select meat and not be above going to the butcher herself. The following points which

* The Public Health (London) Act, 1891 with an Epitome and Copious Index by Dr. Maybury (Henry Kimpton, 82 High Holborn).

are taken from "A guide to meat inspection" by Captain J. Stacpole may be of help to her.

Flesh and Fat (Healthy).

In parts it should be infiltrated with fat so as to give it a distinctly mottled or marbled appearance on section. The lean parts after exposure to the atmosphere should be of a bright, clear-looking, cherry-red colour, but the cut portion of meat under inspection becomes black and dried up in time.

Fat varies in colour from white to straw colour and yellow, being usually whiter in colour in the meat from young bulls and animals fed on corn or grass than from bullocks or cows. It should be firm, have a suety taste and greasy touch; be readily combustible and capable of resisting putrefaction.

The fat is of a deadly white colour. The flesh has a uniform pink appearance owing to diffusion of the colouring matter of the blood. The whole has the appearance of having been soaked in water, and there will be no oozing and dripping of a watery liquid from the carcase. Should it, however, have been kept long, it can easily be recognized by a general dull, parboiled, *dirty* appearance, and

on a fresh section being made the watery condition will again be apparent.

Horse Flesh.

The muscular tissue of the horse is much darker in colour than that of the ox and it is coarser in texture; in flavour it is said to be superior, but the odour is less pleasant. The fat is always of a yellowish colour, is softer and has rather an unpleasant sickly taste, due probably to the fact that it contains more margarine than does the fat of the ox.

Goat Flesh

The flesh of the goat is, in adult animals, much darker in colour than that of the sheep, and it is less abundant. When newly dressed and when subjected to the action of heat, the flesh of the goat gives off a distinct goaty odour, and it has also a goaty flavour.

Danger of bad

Meat, Game, Fish, etc., should never be kept long enough to undergo decomposition, for to eat it in such a condition may produce some kinds of indigestion and mental depression. This is caused—according to Brieger—to the absorption of poisonous alkaloids (called Leucomaines) produced from decomposing meat, game or fish when taken into the stomach and acted upon by the gastric juice.

CHAPTER VIII.

THE REARING OF INFANTS.

INFANTS should not suffer from indigestion. Nature's wisdom. Nature, in her supreme wisdom, provides food for infants which is easy of digestion and assimilation, and all the organs are healthy when the child is born; even should there be an hereditary taint in the blood it nearly always lies latent some time after birth. How is it possible then to account for the extraordinary statement I am about to make, viz., that nearly every disease of childhood is connected with indigestion and bowel complaint? Simply by observing the great ignorance, cupidity, and superstition which surrounds the feeding of infants. Sir Henry Thompson says: "I fear it must be "admitted that the majority of British infants "are reared on imperfect milk by weaker ill-

Diseases of childhood.

"fed mothers. And thus it follows that the "signs of feeble vitality, of fretful disposition, "or of disease, may be observed at a very "early age, and are apparent symptoms of "indigestion or in the cravings of want mani- "fested by the 'peevish' and sleepless child. "In circumstances where there is no want of "abundant nutriment, over-feeding or com- "plicated forms of food suitable only for older "persons produce for another infant troubles "which are no less grave than those of the "former." When will young mothers read for themselves the way that Nature intended the young to be brought up, instead of entrusting their infants to ignorant, uneducated women who call themselves nurses, and who argue that because a drop of gin seems to bring comfort to their own stomach it will do the same to the helpless being on their lap, with the consequence that the child suffers from convulsions, diarrhœa, skin diseases, gripes, and general malnutrition?* The cause of

Cause of indigestion.

* The *wise* nurse puts all the ailments down to "teething," and the fond young mother is perfectly satisfied, whereas the real cause is malnutrition.

indigestion in infants is overfeeding or improper feeding. Mother's milk is the proper and only food that a child should have until it is eight months old; if for any reason the health of the mother is affected, or any hereditary taint exists, so that this source is shut off, then a healthy wet nurse should be procured, and should this not be practicable, cow's or ass's milk should be substituted. The mother must not trust to the dairyman, for what he may call *nursery milk* may be merely *milks mixed*, and an extra price charged. I don't say that this is always so, but if the health of her child is sacred to her, she or its father should personally inspect the dairy farm, or cows and dairy whence the supply is obtained, and repeat the inspection every few months.* There is not much difference between human, cow's, or ass's milk except in the casein. Cow's milk contains this in large quantities, but too little sugar; it is, therefore, necessary

Mother's milk.

Nursery milk and dairies.

Human, cow's ass's milk.

* All dairy farms should have a medical inspector attached to them who would give periodical certificates as to the sanitary condition, &c.

to add a little water and sugar. To make clear the difference, I append the following table:—

	Woman'	Cow's.	Ass's.	
Casein	1·52	4·48	1·82	
Butter	3·55	3·13	2·71	
Sugar of Milk	6·50	4·77	6·08	
Different Salts	0·45	0·60	0·34	
	12·02	12·98	9·35	Total solids
	87·98	87·02	90·65	Water
	100·00	100·00	100·00	

Sp. Gr. about 1030 to 1036 at 60° Fahr.*

Cow's milk

Should cow's milk be selected, add one part of hot water, of a temperature of about 96° Fahr., to each part of milk, sweeten with a teaspoonful of cane sugar and give the child 6 oz. at a meal. If the child is sick after the milk add lime water (a tablespoonful to every four ounces). I have known cases where cow's milk is too rich, and is apt to produce vomiting and diarrhœa, and in such cases we must have recourse to a patent food. I would, therefore, advise the mother to try a patent

Patent food.

food, but before doing so she should consult a medical man on the subject, I mean,

* Every mother should have a lactometer in the house, the cost of which is 2s. 6d. to 3s. 6d.

such a medical man as takes an interest in the diseases of children. Many of the patent foods are composed of baked flour or potato flour, sweetened and coloured, all of which produce irritation of the digestive organs, diarrhœa, malnutrition, rickets, etc. When the child is about eight months old it should have well-boiled sop, made from fine wheaten bread, carefully baked, and by degrees bread and butter, bread and gravy, baked potato with gravy, and farinaceous food. I may mention here that I have found "Bovinine" an excellent remedy, in five drop doses, in cases of malnutrition and diarrhœa in children, and have known it to restore them to health when they have been fed on improper food.

When child is eight months old

Condensed milk properly prepared from whole cow's milk to which only a little fine white cane sugar is added, is a capital substitute for fresh cow's milk whenever that cannot be obtained, or when the source of the milk is not thoroughly known, and particularly on board ship. Condensed milk is raised to a temperature of 212° Fahr., the boiling-point of water, which kills any germs

Condensed Milk.

that the milk may contain. When of a proper standard it should contain *10 to 12 per cent. of cream* (fat). When infants are fed on *skimmed* condensed milk or *separated* milk containing not more than *three per cent.* of cream (fat) to which an extra quantity of sugar is added and chemical preservatives, they grow up deficient in stamina and fall an easy prey to some of the diseases of infancy. The flesh such milk produces is not sound or healthy, although the child may be fat, plump and look well nourished. Sound genuine condensed milk should be made from the *whole milk* of good quality, and be entirely free from chemicals and preservatives. The only addition being a small quantity of cane sugar. Many brands sold, according to the analysis of the *British Medical Journal*, are deficient in fat to the extent of 85 to 90 per cent., being merely made of skimmed milk. *

First year of infant's life most important.

It is well to remember that the first year of an infant's life is the most important pe-

* hers should obtain the Author's work on Rearing and of Children which goes very fully into every detail of early childhood.

riod of its existence, and leaves its mark on its future; even should the child be born with some hereditary taint it may, as the common saying is, "grow out of it," if judiciously reared. I hope I have said enough in this chapter to bring the subject thoroughly before mothers, who will, I am sure, profit by it, for it is surely only through ignorance that they allow their little cherubs to suffer.

CHAPTER IX.

CONCLUSION.

SOME HISTORICAL AND INTERESTING FACTS.

Recipes. * I HAVE not added any recipes to this work, as seems to be the custom in the present day in works of this kind, for the simple reason that there are so many excellent *cookery books* † in the market which go most carefully into the subject of the way to cook invalid food in every way, and written by women who have had practical experience about what they write. I, therefore, refer my readers to these works, instead of filling my

* Some useful hints on the selection of different kinds of food and the way they should be cooked can be found in "Food and Drink Rationally Discussed."

† Mrs. A. B. Marshall's works on cookery are really excellent and may be consulted with advantage by every housewife.

book with matter which can be so easily obtained. I would merely remark that saccharin can always be substituted for sugar.

Man his own master.

"Let the reader remember it is at the will and pleasure of every man to do as he likes, either after the dictates of a depraved humour and extravagant fancy, or to live at what rate he pleases, but everyone is bound to observe the injunctions and laws of nature, under the penalty of forfeiting his *health*, *strength*, and *liberty*.

Vegetables and animals.

Vegetables, being rooted in one place, are always in connection with their food. Animals being generally of a wandering nature, receive their food at intervals in a stomach. The regulator is *appetite*, which, although referred to the stomach, originates, as I have already stated in the introductory chapter, in the brain. There is necessarily, however, a free nervous communication between stomach and brain, for Brachet proved that, when a few grains of opium were given to a starving dog the pangs were alleviated, and he became indifferent. The Turks have used the same drug for a similar purpose, as also did Napo-

Brachet's experiment.

leon in the disastrous Russian campaign, on the return from Moscow, and sailors, when distressed by want, habitually use it when procurable. Joy or grief quickly changes appetite. In healthy, sedentary people, where expenditure of bodily substance is small, real appetite is not felt until after the stomach is empty, hence the common complaint of want of appetite and disordered liver and stomach. Exercise must be interesting, in order that the brain may co-operate with the stomach, hence the appetite of the foxhunter is ravenous; on the other hand, exercise, as I have said before, is bad immediately after a meal.* Inactivity requires less food,—for this reason the tortoise, frog, snake, etc., live months without food. If too much food be taken Nature tries to throw the excess off from every source. The ever-wise Hippocrates, knowing this, made the following sage remark:—"Severe perspiration, occurring during sleep

Joy or grief.

Exercise should be interesting.

Hippocrates' remark.

* Magendie fed two dogs, one of which went immediately to the hunt, and the other fell asleep before the fire. On the return of the hounds both were killed. The one which slept had digested every particle of food, while in the other digestion had not commenced.

without apparent cause, is a sure sign that too much nourishment is made use of." We must not confound appetite with taste, and continue to eat for the gratification of the latter after the appetite is satisfied. In disease the appetite may be enormous. Baron Percy relates of a man who ate 24 pounds of beef in a day, and thought nothing of swallowing a dinner prepared for 15 German boers.

Appetite and taste.

Too much stress is laid on the experiments performed by Dr. Beaumont in St. Martin's stomach. What will easily digest in one stomach will not in another, hence one person will speak highly of cheese or pork whilst another will depreciate both. Dr. [illegible] is reported to have said once to his class, "I will tell you that the stomach is like a digester, others a chemical laboratory, others a fermenting vat; but, gentlemen, I say it is none of these. It is a stomach, gentlemen—a stomach!"

Dr. Beaumont's experiments.

The Roman physician Baglivi, who practised among Catholics, mentions that in Italy an unusually large number of cases of indigestion recover during Lent; proving that my

Dr. Baglivi's experience.

contention for treatment by dietetics is a correct one.

Premature exertion of the intellect.

The premature exertion of the intellect (to which attention has already been directed, and to which children are stimulated in the excitement of emulation and vanity) inflames the brain and all the organs depending on it, with, as a rule, disastrous results in after life. Many distinguished men were celebrated only for health and idleness in childhood. Newton and Nelson were said to have been very *lazy at school;* Napoleon said he had "good health at school, else he was like other boys"; Adam Clarke was a dunce, and seldom praised by his father except for rolling large stones; Hunter could not learn Latin; Sheridan was considered a helpless fool by his mother. On the other hand, Tasso, Pascal, and Kirke White were notable examples of early precocity. Shakespeare, Gibbon, Scott, Davy, and Mozart were also very precocious.

Malt liquor in childhood.

Malt liquor (see Alcohol) is detrimental to children, but during active growth the functions are sometimes enfeebled by great demands, and in such cases mild ale in very

small quantity does good. So thought our forefathers who founded some of our old colleges, for there we find a quarter of a pint of "home-brewed" allowed at dinner to the *developing* youth.

Carmichael's report of a House of Industry containing 600 boys, aged from a year to puberty, showed they were fed on coarse brown bread and butter-milk for breakfast and supper, with potatoes and greens for dinner, with little exercise and bad ventilation, and all were scrofulous, one half of them bearing the characteristics on their necks.

Carmichael's report on House of Industry.

Abernethy called indigestion "City disease which followed commercial embarrassments." City men often suffer from *Muscæ Volitantes* (specks before the eyes), and these often proceed from deranged digestion, and are cured by what cures it.

Abernethy's term for indigestion.

It is said a single look and a very few words from the tyrant monarch gave the ambitious Wolsey a fit of indigestion which terminated the Cardinal's life.

Wolsey's end.

We all know that the prize-fighter, pedestrian, and all who train for feats of physical

Athletes.

ength must live abstemiously when preparing themselves; so must also the candidate for literary honours; and all who wish to live long and enjoy good health.

Over-eating. Great harm is done to the digestive organs and the body by taking too much food; it produces corpulency, a loaded tongue, vitiated secretions, insomnia, gout, congestion of the liver and brain, and life is ebbed away in pain and misery.

FINIS.

INDEX.

A.

C

D.

E.

F.

G.

H.

I.

M.

N.

Q.